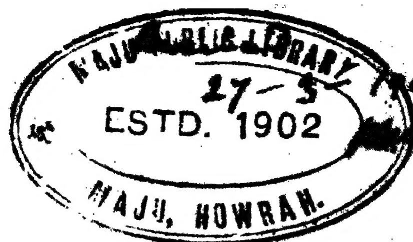


MANCHESTER

VEGETARIAN LECTURES.

SECOND SERIES.

Delivered in the Brotherton Hall, Manchester, 1887-1888.

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PREFACE.

THE present Volume contains the substance of the Lectures delivered in Manchester under the auspices of the Vegetarian Society during the winter of 1887-88.

The Lecturers were not chosen exclusively from the ranks of Vegetarians. Dr. B. W. Richardson's lecture, entitled, "The Food for Man," &c., was published *in extenso* in *Longman's Magazine* for May, 1888.

W. E. A. A.

75, Princess Street,

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MANCHESTER VEGETARIAN LECTURES.

No. 1.

FOODS FROM THE VEGETABLE WORLD.

By Mr. E. J. Baillie, F.L.S.

THE first of the Second Series of the Manchester Vegetarian Lectures took place on the evening of Tuesday, October 25, 1887. The lecturer, Mr. E. J. Baillie, F.L.S., of Chester, took as his subject "Foods from the Vegetable World." The chair was taken by Mr. Leo H. Grindon (the author of "Fruit and Fruit Trees," and other well known horticultural and botanical works). The meeting was preceded by a Vegetarian dinner. Over 120 guests were present, members of the Manchester Field Naturalists', Scientific Students', Microscopical, and other societies.

Mr. LEO H. GRINDON, in opening the meeting, expressed his great sympathy with those who sought to promote the extension of fruit culture in this country, the more so because the drink bill was the smaller. (Applause.) If everyone in this country had what they ought to have, as a matter of health, they would have a pound weight of fruit every day. For this country to supply so great a quantity was, under the present system of cultivation, impossible, and therefore it behoved all those who desired the general welfare of the community and the reduction of the drink bill to promote the cultivation and the cheapening of all the best kinds of fruit. He felt sure that before very long they would perceive that this question of the cultivation of fruit would form a part of a great educational movement in which all would take part. (Applause.)

Mr. BAILLIE then delivered his lecture. He said: There are, I know, people present here who are adepts in the botanical aspect of the question, as there are others familiar with the practical aspect of the question; and there may also be some others who know something about the subject, and little more perhaps than the young lady, *not* in Man-

chester, who once expressed her utmost astonishment when told that cucumbers did not grow in slices. (Laughter.) The subject that has been given to me, rather than chosen, is a very wide one. It is astonishing how oddly some people look upon matters of food. Some very questionable elements are classed under that distinctive appellation. We are not going to consider the whole lot of foods that would suggest themselves, but the foods from the vegetable kingdom; and I would like to call your attention to the fact that it is a very wonderful kingdom indeed. Coming between the mineral on the one hand, and the animal upon the other, it is, I think, the only kingdom from which man can be fed entirely and completely. I know that man could not live entirely upon the mineral kingdom, and I do not think man could entirely live upon the animal kingdom; but on the products of the vegetable kingdom man can live, and, as some of us think, live well. (Hear, hear.) People often say to me, "I don't know whatever you find to eat." I do not know whether their doubts are to some extent founded on a due sense of my proportions—(laughter)—but I rather think they are chiefly the result of a very prevalent habit of regarding each meal as consisting of the dish of animal food which has characterised it. If you ask people what they have had for dinner, they always say, when pork has formed a part of the meal, "I had pork;" and if they have quite a wealth of pies and puddings and only one slice of beef, you are always told that they had beef for dinner; and thus by a trick of speech an undue prominence is given to the value of animal food.

I will begin by saying something about the distribution of food plants in the vegetable kingdom, which is divided into two great parts, namely, the phanerogams, or flowering plants, and the cryptogams, or plants that do not flower. To the former of those great divisions we are mainly indebted for the various vegetable foods, though to the latter class belong the mushroom and a few other plants which form an important element in the food supply of our country, affording, I believe, from the grower's point of view, one of the most profitable of the present day crops. With these exceptions, however, our food supplies are obtained from the flowering plants. I will, therefore, enumerate the different parts of a flowering plant, stating which of them supply the different vegetable foods. The poet Wordsworth says, "The child is father to the man"—indeed, not only is the child father to the man, but the child *is* the man. Similarly, in considering the plant with the seed, we may say that the seed *is* the plant. Within the seed lies the rudimentary germ of life, complete and intact.

The production of their seed is the destined purpose of the flowers of the

flowering plants. The plant is fed by means of its roots. Some roots are annual, some biennial, and some perennial. The annuals are herbs which spring from seed, blossom, mature their fruit, and then die, root and all. Biennials—for example, the carrot and turnip—grow the first season without blossoming. They thicken at the base, lay up a stock of nourishment, lie up for the winter, shoot up vigorously, blossom the following spring at the expense of the starchy nutriment, and then die. Perennials are plants that live and blossom perpetually. Leaving the root we come to the stem, which is the axis of the plant, and that part which bears all the other organs. It is a very beautiful study to consider the different kinds of stems we find in the vegetable kingdom—trailing, creeping, climbing, herbaceous, &c. Then we come to the leaves and leaf stalks. The leaves, again, are a very beautiful study, not only from an economic point of view, but also from a botanical and also from a poetical standpoint. Next after the leaves come the flowers, for the production of seed, says the man of science; and for the glory of the earth and to add to the delights of man, says the enthusiast and lover of nature. In what beautiful forms do we find the flowers of plants, adorning their graceful stems with a crown of beauty. Lastly we have the fruit.

We use for food, I think, in some plant or other, every part of the plant. For instance, we make use of the root of the carrot, the leaf stem of rhubarb, and the leaves of the cabbage. There may be, I suppose, different views as to what is the highest form of food. For myself, I cannot help thinking that the highest form of food is afforded by fruits in contrast to vegetables; that is to say, by that part of the plant which does not come into contact with the soil. Indeed, I think all those forms of food which do not come into contact with the soil are the highest forms of food.

The vegetable kingdom is made up, as you know, of numerous families, and it would be an interesting study to find out to which of these families we are indebted for our food supplies. The family to which we are most indebted, I think, is the family of the grasses, to which wheat and rice belong. The next important family is, I think, the legumes, the pod-bearing fruits, from which we derive peas, beans, lentils, &c. But almost every order contains food-producing plants, and how great the area of the field from which we draw our food supplies is you may gather from the fact that the British flora alone numbers about 100 orders and divisions. In the first division there are something like 430 genera, and over 2,500 species of plants, though many botanists make them very many more. In thinking over the subject, however, I have been

astonished to find to what a small extent we are indebted to the British flora for our supplies of food. We utilise our native plants very little indeed, and very insufficiently, for there are many valuable food-products among the herbs of the field if people would only find them out and use them.

It is interesting to know how far science and art have come to the assistance of nature in bringing forward from their rudimentary forms the many vegetables and fruits which we this day so much enjoy. In bringing these various kinds to perfection, selection of seeds is a most important matter. Those who are not familiar with gardening scarcely credit with what speed plants, like some children, go back again into bad habits if not carefully watched. The higher the condition you get a plant into, the more inclined is it to shoot and run back into some other form. In the flowering season a most careful watch has to be kept to see that there are among them none of the backsliding plants which are called "rogues." It would seem that new varieties of vegetables are not introduced with the same frequency as new flowers; but yet every year some new varieties of fruits and vegetables are introduced. I was much struck in reading in "Notes and Queries" the copy of an advertisement in the *Times*, barely 90 years ago, which commented upon sea kale as a quite freshly introduced culinary acquisition.

The introduction of some foreign foods into this country has been a great national benefit. Take, for example, the lentil. Not very many years ago this food was comparatively unknown. I remember at this time an excitable old gentleman coming up every day and telling me that there was a fortune to be made out of the plant called the "Ervum Lens," and he told me, as a profound secret, that a patent food consisted of little else but lentils. (Laughter.) We did not seem to see it, and the old gentlemen could make no impression; but afterwards I was astonished to find that the lentil did veritably come into commerce.

Mr. Baillie then referred to the success attained by the late Mr. Kynaston in the growth of his fruit trees, &c., in Southport, and he contrasted this result with the complaint of some people who say that their town gardens will grow little besides tin cans and dead cats. (Laughter.) If (continued Mr. Baillie) town gardens can be got to give growth that will blossom and bear fruit, this will well repay the toil of the gardener. (Hear, hear.) Fruit shows do a deal of good by making people at large interested in fruit and other products of the vegetable kingdom. I was lately much interested in hearing the conversation of some friends, one of whom was deploring the fact that our importations were so great, and he could not account for it. He then made the remark that for years he

had eaten nothing but "Baldwins!" Now as the Baldwin is an American fruit, it seemed to me that he overlooked the Herefordshire orchards. Education is needed in many departments of fruit culture; but we must also educate upon other lines. We cannot live upon raw fruit alone, and we must also educate people not only to use it, but to use it properly cooked. We ought to have a cooking crusade as well as a whisky war, and teach our ladies how to cook Vegetarian dishes. (Applause.) If we could only persuade our friends who keep Vegetarian establishments to allow us to send our young people to these establishments for a month, or whatever period would be necessary, they would make very good headway in the elements of Vegetarian cookery.

There is another aspect of my subject: the *waste* of vegetable foods. It is astonishing how few of our people buy vegetables at all. I never see any of the new kinds about the shops of the greengrocer; and the amount of vegetable waste is truly alarming. I wish some method could be devised by which vegetables could be readily distributed among the poor when they are not saleable, to prevent their being thrown away. We ought, further, I think, to remember that in our Christmas presents it would be well to give our friends the chance of possessing fruits and foods from the vegetable kingdom. A cookery book might also be included in the parcel, in that way teaching true economy to those who received the presents, and also showing them how we Vegetarians live. (Hear, hear.) In conclusion, Mr. Baillie said: "Though my subject has been prosaic and commonplace, yet the cultivation, preparation, and distribution of foods from the vegetable kingdom offer opportunities for the exercise of all that is highest for human faculty to the purer minds of those who behold in the world about them the imprint of the fingers of the Father moulding and maintaining everything by the laws of life." (Applause.)

A number of specimens of vegetable foods, including wild figs, bananas, lentils, haricots, peanuts, &c., were placed on view, which the Chairman described. He also referred to the cauliflower, the artichoke, and the asparagus as nourishing and health-giving vegetable foods.

A vote of thanks to the lecturer (proposed by Mr. Joseph Knight and seconded by Mr. J. Birkenhead), and a vote of thanks to the Chairman (proposed by Mr. Baillie and seconded by Mr. Alfred Brothers, F.R.A.S.), were carried unanimously.

After the formal proceedings, Mr. Leo Grindon exhibited a number of vegetable foods, &c., which he had kindly brought to the meeting.

No. 2.

VEGETARIANISM AND THE INTELLECTUAL LIFE.

By William E. A. Axon, F.R.S.L.

The second lecture of the course, on "Vegetarianism and the Intellectual Life," was delivered by Mr. William E. A. Axon, F.R.S.L. Mr. George Milner (the President of the Manchester Literary Club) occupied the chair. The guests at the preceding dinner were the members of the Manchester Literary Club and others.

Mr. Milner, in opening the meeting, said that we as a people ate a great deal too much animal food (hear, hear), and he thought it would be an advantage in many ways—economically, intellectually, and socially—if the people were to eat less animal food and more vegetables. (Applause.)

Mr. Axon then delivered his lecture upon "Vegetarianism and the Intellectual Life." He said:

The doctrine of Vegetarianism is usually assailed from two opposite points of attack. It is said that a diet of fruits and farinacea may be sufficient for those who have no great strain upon their physical powers, but that it would be impracticable for those who have their muscular system severely taxed by hard manual labour. In answer to this it is pointed out that the strongest animals are not carnivorous, and that the strongest races and classes of mankind closely approach to practical Vegetarianism. We are then told that whilst flesh-meat is not essential to bodily strength, it is essential to the power and activity of the brain. It becomes therefore a matter of interest and importance to examine the relation of Vegetarianism to the intellectual life.

There is still a sort of confused tradition in the public mind that identifies the literary life with all that is irregular. The preacher by the voice is the ideal of respectability, but the preacher by the pen, whose pulpit is the novel, the newspaper, or the book of verse, is thought to have the contrary flavour. If you suggest that the life of a scholar may be well ordered, you are reminded of the inebriate vagaries of Porson. If you speak of the harmony of the poetic and the moral faculty, you are met with the wild career of Byron or the sordid misery of the existence of Richard Savage.

There is further a vague idea that literature is the artificial product of

a stimulated brain, and that even when a brain worker has not to make the confessions of an opium eater he has yet to depend for his strength and vivacity upon the aid of alcoholic liquids and stimulating foods. Now, it may be at once conceded that there is a great deal too much of unhealthy work in the intellectual life. Thackeray said in reply to one who had asked him if he had ever received the best medical advice, "What is the use of advice if you don't follow it? They tell me not to drink, and I *do* drink. They tell me not to smoke, and I *do* smoke. They tell me not to eat, and I *do* eat. In short, I do everything that I am desired *not* to do; and therefore what am I to expect?"

A considerable body of evidence as to the methods of literary workers has been collected. Mr. P. G. Hamerton's "Intellectual Life" is an exceedingly suggestive book. Dr. M. L. Holbrook has written a capital work on the "Hygiene of the Brain and Nerves" (New York, 1878). Mr. Arthur Reade, in "Study and Stimulants," has collected a large number of communications from men of letters and science as to intoxicants and narcotics.

A large amount of literary work has to be done under necessarily depressing and unhealthy conditions. The drain upon the vital powers involved in strenuous and often prolonged intellectual labour at uncertain intervals and at untimely hours is not conducive to health. Night-work especially may be regarded as detrimental. Still it will be found that a considerable number of men and women who have done great work in literature have done the greater part of their work in the morning. Harriet Martineau was told that all literary workers took some stimulant. "Why, I do not," she said; "fresh air and cold water are my stimulants." "I believe you," was the reply; "but you work in the morning, and there is much in that!"

Miss Sarah J. Hale, at the close of fifty years of literary work, said: "I attribute this continued health in part to a naturally sound constitution, and very much to regular and temperate habits of life, early rising, and my invariable rule of doing all literary work by daylight, especially in the morning." It was a common characteristic of the late Charles Reade, Henry James Byron, and Anthony Trollope that the bulk of their work was done in the morning.

We have all a certain amount of physiological capital with which to carry on the business of life. The true rule of life is to invest it wisely in a safe and remunerative undertaking. If we want too high a rate of interest, we shall have to accept unpleasant risks. If we use up our capital, bankruptcy will be the inevitable result. Undoubtedly brain work is physically exhausting. In one sense, at least, the thoughts of the

poet and the imaginings of the painter are as much a result of physical exertion as the thud of the pavior's ram. The student who wants to preserve his health, then, will do well to consider what will best conduce to that ideal so seldom attained in perfection, "a sound mind in a sound body." For the Vegetarian diet we may claim that, whilst it contains all the essentials of strength taken directly from the storehouse of nature, it avoids many of the dangers of artificial stimulation. "What man eats, he thinks" is the declaration of a German writer. Like most broad generalisations, this may be taken too literally, but there is a physical basis alike of thought and words. Who were the hardest workers in the House of Commons in the times after the first Reform Bill? John Bright and Richard Cobden—water drinkers—and Joseph Brotherton, Vegetarian. What has Sir Edward Baines said on this point? "When I entered the House of Commons I was told by one of my predecessors that I should not be able to go through the business without the help of wine. My medical adviser knew better; he did not recommend any alcoholic drink, and only laid upon me one injunction, namely, that whatever late hours the House might keep, I should every night lie in bed seven hours. The advice was worth more to me than all the wine in the London docks. Not one glass of wine or ale ever touched my lips, and in consequence—not in spite of it, but in consequence, I say—I was able to do almost as much work as any man in the House. . . . I left Parliament absolutely unscathed, and all but unworn."

Professor Newman is a man whose experiences of the intellectual life have been varied, for he has attained distinction in mathematics and linguistics, as well as in literature and philosophy. He says: "If I may advise any one, it is *to eat the very least* in quantity which will keep him in health. Any superfluous food must either derange health or use up (in chemical process to get rid of the superfluity) force which else would be at his voluntary disposal. It is a great thing in advancing years to be light as a boy. My digestion was always painful until I became a Vegetarian ten years ago: but though painful, I make no doubt it was successful, to judge by the state of my skin and my unchanged weight. But I regard abstinence from flesh-meat to be an advantage to an intellectual and sedentary person scarcely inferior to abstinence from wine, ale, &c."

What is the testimony of that scholar of world-wide fame—Professor J. E. B. Mayor? Having made a dietetic experiment to test Vegetarianism, he says as the result: "It left me convinced that flesh-meat is entirely unnecessary for health and strength. I feel bound to make this conviction known to others, who now sacrifice

health and comfort to the supposed necessity of supplying their families, out of limited means, with butcher's meat; serving up *frugibus inventis glandes.* The gap left in my diet by flesh, fowl, and fish is filled up by fruit, which I had almost given up since boyhood, and by the grains and pulses. Let thousands make the same change, and landowners will soon begin to plant fruit trees in every corner, training pears and stone fruit on every wall."

Let us take another typical instance—that of Edouard Baltzer, the ingenious scholar and fervid orator—the man who was wounded in the fight for liberty in 1848, and who has ever since devoted his best energies to the cause of the people. "I have had," he says, "a rich experience in the care of health, and have learned the injurious effects of tobacco, spirituous liquors, and a carnivorous diet, and especially how they impair the nervous system, and thereby the mind. The well-organised mind is indeed its own master, but the power of self-control is strengthened by a life in accordance with natural law. Vegetarianism, rightly understood, is the true method, alike for the sound and the unsound, but as yet its teachings are heard only as the voice of the preacher in the wilderness, yet blessed are the few who hear and practise it—that is, those who practise it in love and with the understanding."

A writer famous alike for the quantity and quality of his work is Elisée Reclus. Of his great *Géographie Universelle* he produces a number every week, a volume every year, and has never missed being up to time. He begins his daily task at seven in the morning, and, save a few short intervals for food and exercise, keeps hard at work until eight in the evening. He is a very moderate eater, is practically a Vegetarian and teetotaller, and to his abstemious habits he probably owes his excellent health and capacity for sleep, for he is a man of slight frame, and by no means robust. His powers of assimilation and acquisition are extraordinary. He seems to forget nothing, whether it be learning Russian, in order the better to write his article on Russia, or making a journey to Syria in search of materials for his chapter on Asia Minor.

Where can we see a finer type of the intellectual life, and such a close approach to the ideal of Plato or Socrates, as in the long life of Bronson Alcott, the friend of Emerson, and the central figure of the Concord School of Philosophy? What is his testimony? "As to my accepted bill of fare, I may add, moreover, that fruits rank first and highest in the pyramid; bread properly next; and vegetables lowest, and last, at its base. The distilled juices are forbidden. Flesh, if entering but

slightly, is, to the fairest temperaments especially, unfriendly if not demoralising. The less of it the better; the more genially the body answers to the mind; the more ideal, spiritual, nor the less practical. Sobriety in all pleasures is the open way to the highest and purest satisfactions; the deepest, holiest, this life can give; as it is likewise the sole gateway to future beatitude."

The fact that a man is a Vegetarian is not always recorded by his biographers. From the latest record written of the career of that remarkable man, Baldwin of Canterbury, the preacher of the first crusade, no one would suppose that he had anticipated the rule of the modern teetotaller and Vegetarian. Still earlier we have the testimony of Clemens Alexandrinus, of Basil the Great, of Gregory Nazianzen, of St. John Chrysostom, and of Jerome. The men who kept alive the flame of learning and piety in the middle ages were mainly members of religious orders under vows of abstinence and simplicity of life. One of the greatest names in the intellectual domain is that of Lionardo da Vinci, poet, painter, sculptor, engineer, inventor—a man who anticipated many of the discoveries of later ages, and the greatness of whose mental grasp we are only now beginning to understand and appreciate. The fact of his Vegetarianism appears by a letter of Andrea Corsali to Giuliano de Medici, who compares the abstinence of the Vegetarians of Gujerat to that of Lionardo da Vinci.

There is enough of testimony as to possibility of the intellectual life under a Vegetarian regime. The great names alike in East and West, of Buddha, of Pythagoras, of Plutarch, of Milton, and of Newton, would warrant a more extravagant claim.

The calamities of authorship have often been described, but there is danger even in success. The man who during long years has been striving to attain success, who has lived laboriously and worked for inadequate pay, finds his reputation established, and an over-abundant demand for his services. This is the danger of the successful lawyer not less than the successful dramatist, the successful actor, or the successful author. When intellectual ability is united to moral earnestness there is sometimes another danger. The sight of the immense work waiting to be done, and the consciousness of power to do it, is a temptation which to some natures is irresistible. They see that the fields are white unto harvest, they see that the labourers are few, and in well-meant but sometimes futile effort they attempt to do single-handed the work that should be made light by many willing hands. This was the case with Horace Mann, whose efforts for education have had a marked effect on the social and educational life of the century. Mrs. Mann says of him:

"With all his wisdom, however, my husband did not know how to spare himself, and died, as I think, prematurely, of *fatigue*. He undertook what no man could accomplish with impunity, and gave himself *no* rests. Mr. Combe warned him twenty years before, but it did not avail. He wanted him to live and watch over the growth of his work, and not to die prematurely. I have heeded the warning, and, although I have been a great sufferer for the last two years, I have rallied and am improving enough to enjoy life again—a pleasure I had utterly lost."

The gospel of recreation has been offered to the American people by Mr. Herbert Spencer, and perhaps it would be more useful there than in any other country. Yet, wherever the complex network of civilisation extends, there are the two opposing extremes of classes killed by over-work and classes killed by idleness. The art of wise relaxation needs to be cultivated, and the brain will always give due warning of overstrain. "Many persons," observes Bryant, "relax from labour and care by the use of narcotics. Music is a better resource. A tune is certainly better than a cigar."

Some conception of the dangers of a stimulating flesh diet seems to have occurred to Dr. C. B. Radcliffe. He says: "It is certainly possible for people to enjoy excellent health upon the most different kinds of diet. No doubt there are individuals who take kindly to animal food, and others who do not do so; but all the evidence, as I can read it, is against the notion that meat is to be looked upon as the food which must be had at any price. At all events, I cannot help but think that the present practice of urging persons at all weakly, especially children, to eat as much meat as they can, may have not a little to do in causing the development of many nervous disorders and in deranging the health in many other ways besides; perhaps (as the inquiries of Dr. Parkes would lead one to expect) in causing liver and kidney and other glandular diseases, by overtaxing the eliminating power of these organs.

A still later utterance, and one that shows the present tendency of scientific thought, is that of Dr. B. W. Richardson, who says: "We could, therefore, live direct on Vegetarian diet and fruits, if we liked, and that we should find it a very cheap mode of living is certain, for the simple reason, because it would be going first hand for all our food. I am not a Vegetarian, but I am bound to say so much in respect to the Vegetarian system." And again, "I should like to see the Vegetarian and fruit-living plan brought into general use, and I believe it will be. We only want to learn better how to prepare vegetable food for us to live on it altogether. For my own part I do live on it pretty well altogether."

The examples that have been cited are of those who were actively engaged in the production of literature, but it would be a deplorable fallacy to suppose that the intellectual life is confined to the narrow circle of those who make the books of a generation. The intellectual life is possible to all. Exceptionally brilliant gifts or an extensive range of acquired knowledge may be happy and desirable adjuncts, but are not essential to the intellectual life. Perhaps it has been best described in Wordsworth's famous phrase of "plain living and high thinking." We need not have a jot of ascetic feeling in order to realise that the body needs the control of the mind. Eating to live and not living to eat is the dietetic rule of the intellectual life. Let us try to keep our bodies free and our brains clear. Let us adopt those methods of existence that will leave us the greatest leisure for good and the greatest capacity for usefulness, and that will give us in the completest fashion the solace and the advice and the companionship of the best and wisest. The aim of the intellectual life is to know the best. But it will be of little avail unless knowledge is translated into action. We must have works as well as faith. The intellectual life has its duties as well as its pleasures. Even the Garden of Eden had to be dressed and kept, and the grand old gardener and his wife might have saved themselves trouble by a more sedulous attention to the culture of fruits and flowers. So also might their descendants.

This leads us to consider the question as to the ethics of food. It is desirable that we should minimise the amount of pain existing. The poet tells us that "Carnage is Heaven's own daughter," but our hearts revolt at the doctrine. The rule of self-preservation is a safe boundary between pure sentiment and thoughtless cruelty. If it is necessary for the sustenance of his life, man, let us say, has justification for taking the life of one of his poor relations of the animal kingdom. Let him slay and eat. Without that justification it is surely best to withhold the hand that would wrest life and all its thousand-fold enjoyments from some sentient creature. This consideration acquires additional force if we take into account all the suffering which is inflicted upon the animals slain for the table. It may be said that these are visionary notions, and can never become general. Cruelty is, it is true, an unhappy characteristic of our race. An Englishman, if he is in holiday dress, is too often in search of something to kill. Still we have made a considerable advance, in spite of the brutality of Hurlingham and the butchery of the battue. An old cookery book gives minute directions for the cooking of a fowl in this barbarous manner: "Take a goose or a duck, or some such lively creature (but the goose is the best of all for the purpose), and

pull off all her feathers, only those of the head and neck must be spared. Then make a fire round about her—not too close to her, that the smoke do not choke her, and that the fire do not burn her too soon; not too far off, that she may not escape the fire. Within the circle of the fire let there be small cups and pans full of water, wherein salt and honey are mingled, and let there be also set chargers full of sodden apples cut into small pieces. The goose must be all larded and basted over with butter, to make her the more fit to be eaten, and that she may roast the better. Put the fire about her, but do not make too much haste, when as you see her begin to roast; for by walking about, and flying here and there, being cooped in by the fire that stops her way out, the unsecured goose is kept in. She will fall to and drink the water to quench her thirst, and cool her heart, and all her body, and the apple sauce will cleanse her. When she wasteth and consumes inwardly, always wet her head and heart with a wet sponge; and when you see her giddy with running, and begin to stumble, her heart wants moisture, and she is roasted enough. Take her up, and set her before your guest, and she will cry as you cut off any part from her, and will be almost eaten up before she is dead." The writer concludes by observing, "It is mighty pleasant to behold." Though the gorge rises at this cruelty, it is probable that it was as thoughtless and free from malice as the conduct of a boy who pulls a fly to pieces limb by limb. Chunder Sen complained that he never entered an English dining-room without being reminded of a charnel-house. The charnel-house is at least now free from living skeletons, and so much progress has been achieved. The want of the present age, let us repeat, is plain living and high thinking. It needs no ascetic spirit to see that the danger of the times is the prevalence of luxury. The money which would purchase intellectual enjoyment, which would expand the mind, is squandered profusely in things which are, some useless, and others injurious. We are in danger of becoming the bondslaves of superfluity.

In the Peel Park, at Salford, there stands the statue of one who, in the course of a long public life, "fought the good fight and kept the faith," and underneath on the pedestal are these words—"My riches consist not in the extent of my possessions, but in the fewness of my wants." This golden sentence was the life-thought of the man who uttered it, and it remains a sermon in stone, preaching to another generation a much-needed truth. Joseph Brotherton, whose words these are, laboured long and earnestly for the good of his fellow-creatures, and aided in the good movements which arose for bettering the condition of mankind during his lifetime, and so left behind him a large amount of tangible good as the result of his labours. But if this winged saying of

his could only be sunk deep down into the hearts of his fellow-countrymen, if they would only translate it as he did into daily action, he would then become one of the greatest benefactors the world has ever had. If it were applied to the matter of eating and drinking, not with an ascetic motive, but in an earnest spirit, it would raise us all to higher levels of thought and increased social usefulness, so that to a greater extent than now distribution might undo excess.

Here, again, the doctrine of Vegetarianism is helpful; for whilst it smoothes away some of the troublesome details of life, it adds to it a moral earnestness that binds in one unending chain of kindly feeling all the creatures of the universe. The sentiment that spares the sheep and the deer will not sacrifice man. The tender sympathy that is revolted by the cruelties of the slaughter-house will not leave a brother to die in the ditch. With whatever failure and imperfection, let us all strive for the title claimed by Heine—the grand title of "Ritter von dem Heiligen Geist,"

"Now that I have grown to manhood,
Studied much and travelled wide,
All my heart with new faith glowing
Doth in Holy Ghost confide.

He has wrought the mightiest wonder,
Mightier will He work again;
He has broke the tyrants' stronghold,
He has broke the servile chain.

To all death-wounds He brings healing;
He renews the ancient light;
And all men are equal born,
All born noble in His sight.

Mists of darkness He, and spectres,
From the brain doth chase away—
Things which love and joy can banish,
And bewitch us night and day.

Knights a thousand in proof armour
Chosen has the Holy Ghost;
Courage high to work His mandates
Gives He to the champion host."

Here, again, we see that the intellectual and the ethical elements must unite. The crusade against cruelty, against luxury, against disease, must be informed by knowledge and guided by the moral sense. That the kindly fruits of the earth are the proper food of man we know from physical science; that it is the cheapest we know from political economy. The poor, who might buy the best at the least cost, buy the worst at the dearest rate. Nor can the intellectual classes blame them

so long as they set the bad example. Is it not time to conform to a loftier ideal? May we not escape from the shambles back again to the garden? This has been the hope of the good in all ages, and it is in the accomplishment of the ideal of the human race that we ask your sympathy and aid. No one has imagined a slaughter-house in Eden or a butcher's shop in heaven, and when men come to paint the purest ideal of life, whether as a tradition of the past or a prophecy of the future, they acknowledge the truths which I am now, however feebly and inadequately, proclaiming, when Ovid portrays the golden age—

"Not so the golden age, who fed on fruit,
Nor durst with bloody meals their mouths pollute:
Then birds in airy space might safely move,
And timorous hares on heaths securely rove;
Nor needed fish the guileful hooks to fear,
For all was peaceful, and that peace serene."

Isaiah saw in prophetic vision the home of the righteous who lived in accordance with the divine law. "The wolf and the lamb shall feed together," he says, "and the lion shall eat straw like a bullock: and dust shall be the serpent's meat. They shall not hurt or destroy in all my holy mountain, saith the Lord." When Shelley saw his vision of the regenerated and enfranchised nations, he cried :—

"'My brethren, we are free! The fruits are glowing
Beneath the stars; the night-winds are flowing
O'er the ripe corn; the Birds and Beasts are dreaming—
Never again may blood of bird or beast
Stain with his venomous stream a human feast,
To the pure skies in accusation streaming.
Avenging poisons shall have ceased
To feed disease, and fear, and madness.
The dwellers of the earth and air
Shall throng around our steps in gladness,
Seeking their food or refuge there.
Our toil from Thought all glorious forms shall cull
To make this earth, our home, more beautiful,
And Science, and her sister Poesy,
Shall clothe in light the fields and cities of the Free.'"

A short discussion followed, in which Councillor J. G. Mandley, Dr. Emrys-Jones, Miss B. Lindsay, and Mr. T. Shaw took part. Dr. Emrys-Jones said he thought that most men would now admit that it was perfectly possible for a great many people to live quite a healthy life—mentally and physically—upon food drawn from the vegetable kingdom alone; but whether all could do so was, to his mind, quite another question. He thought they must allow each individual to think for himself on the question of diet.

Mr.* Ben Brierley, in moving a vote of thanks to the lecturer, said he was not a thorough Vegetarian, but he had been, and gained weight at the time. He did not know whether feeding on roasted apples and cold turnips increased his bulk, or whether it was compulsory idleness, having nothing to do for a whole month but tune the shepherd's pipe and make raids on farms. (Laughter.) Unless they were compelled to be more abstentious in their habits, he was afraid Vegetarianism would never be universally adopted; and he was the last man in the world to wish that their means might be so limited as to render a special economy necessary. But they were reputed to be a nation of gluttons; and it would be no libel to say they had taught other nations to be gluttons. He did not see that they were any stronger, or healthier, by indulgence in animal food, though Ab-o'-th-Yate maintained that "cheap beef is the best recipe for making children's hair lie down." (Laughter.) But they must take that for what it was worth, like most of his sayings. He rather thought it had a tendency to make people bald. (Laughter.) His own observation told him that there was a greater number of billiard balls than there used to be. They saw their friend Axon was not among the list of the easily-parted, and he cannot boast of having eaten as many pork pies in a day as would have made a dog-chain. (Renewed laughter.) The time that he alluded to when he was chiefly employed in making raids on farm property and charming the souls of very young maidens with his flute was during the great strike of 1842, when they had a "month o' Sundays." At that time, in the village where he was brought up, butchers had to close their shops for want of customers. One of those meat purveyors, the principal of two, said he only killed half a sheep per week; the other half he turned out to grass. (Laughter.) The sheep-dog, for want of more active employment, chased its own tail, and fetched it up. (Renewed laughter.) A good many were thrown upon their own resources, he being turned out in a morning, after breakfasting on "creep-o'er-steels," to forage for himself all day. That was when orchards yielded unaccountably poor crops, and turnip fields suffered from blight. (Laughter.) But he gained in weight, nevertheless, and sighed when the famine came to an end. The people could not stand it so well in 1862. Twenty years of prosperity had brought with it more luxurious habits, and beef dumplings were in the ascendant; consequently they could not endure starvation so well as those who were used to it. And, he was afraid that if such things were to happen now they would begin to cry out after the first week's blank cattle market. They could not turn out to grass like a certain potentate of old, and few of them had teeth to peel turnips or press the juice out of apples. When bacon was carved with a pair of

scissors, and shared out in pieces about the size of dominoes, they might have lifted a boy by the ears without his feeling it; but now if a breath of wind blew on him the doctor had to be sent for. That showed, to his mind, that there was something wrong in their mode of living; that they were going too fast to be a healthy race, and that the privations of the past, could they be realised, might teach them a lesson in alimentary matters that would do them good. (Applause.)

The vote of thanks was seconded by Mr. JOSEPH KNIGHT.

Mr. AXON then briefly replied. A vote of thanks to the Chairman, moved by Mr. R. HOOK and seconded by the Rev. JAMES CLARK, was unanimously carried, and a reply from the Chairman brought the meeting to a close.

No. 3.

ADDRESS BY MRS. WILLIAM HARRISON.

THE third meeting of the course, which took place on November 22, took the form of a conference of ladies, to discuss matters connected with Vegetarian cooking.

Mrs. WILLIAM HARRISON, who presided over the meeting, said: My dear friends,—Our meeting this afternoon is arranged to be of a social kind, to chat over with each other the subject of Vegetarian cookery, and the general domestic aspect of Vegetarianism. Pure food, fresh air, plenty of light in our homes, and out-door exercise, are all essential to our general health; but among these pure food is not the least important. We require to seek, however, not only such food as is pure, but that which is best for our different constitutions, and also the best and most simple mode of preparing it. The food we Vegetarians use is wholesome, nutritious, clean, less liable to disease; and it is, as we believe, the food intended for us by our Great Creator. We feel confident that many of our friends, who are not as yet Vegetarians, would like to adopt this diet, but hesitate to make the change to a style of living which is different from that which they have been accustomed to, and which appears to them a more difficult one. Now, our desire is to endeavour to convince you that it is not difficult, but very easy, and to help you as much as we can to make a start in the new life. This new life, we feel confident, will make us all happier and brighter, will lift our thoughts higher, and make us aspire to a nobler and holier life. It requires little self-sacrifice; and what does the sacrifice consist of?—denying our perverted palate the pleasure of tasting flesh. Now this pleasure can only last a few minutes once or twice each day, as the case may be; and will you let your conscience suffer for the sake of such a fleeting pleasure? If you could stand inside the slaughter-house a little while before your dinner, each day, I am sure you would close your mouths as well as your ears to the results of barbarity.

There are many things to be considered in connection with this Vegetarian diet as compared with the flesh diet; and if you will put aside all prejudice, and consult wisely with your own conscience, after the remarks you will hear this afternoon, and the more practical part at the tables below, we shall hope for some good results in favour of Vegetarianism. The health of our bodies has much to do with the health of our minds,

and those who would have a clear head must have a clean stomach. Now as *we*, "the womenkind," have the management of our households, we have a very great responsibility—since the health of our families very much depends upon what we prepare for them. If we could trace disease in its various forms, we should find that much of it is attributable to the eating of flesh. Disease, of course, is often inherited from our forefathers, and, in those cases where we can trace it, it is usually found to be due either to overfeeding or excess in some form or other. Therefore it behoves us, as we grow more and more enlightened, to use great wisdom and discretion in our everyday life, especially in the choice of our food.

It must be more in harmony with God's divine will (if we think wisely and carefully upon this subject) for us to eat of the fruit of the tree, the herb of the field, and such other food as Nature has provided in such abundance, and for us to leave behind the cruelty and bloodshed with which our English homes are too much stained. When this is accomplished, we shall have peace on earth. The time draws near when we shall learn the truth, and when the truth we know we shall teach to each other until it reaches to the ends of the earth. Then truth, peace, joy, righteousness, love, and purity of thought will reign; and when these dwell in our nature there will be no bloodshed, no killing of each other, no taking of life for our food. Content with what sweet Nature has provided, instead of spending our time in studying how to live, we shall live to study the advancement of Christ's Kingdom and His glorious reign. We await the time when the young buds shall come forth into glorious blossom, and bring forth fruit meet for the Master's garden. Who are these buds of promise? Those who are being taught in early life to live in accordance with God's divine laws. When we fulfil these laws we shall have peace on earth.

We all need teaching, and no person is too wise to learn more. We can live and learn every day of our lives, and we may often learn a lesson from the young and simple. The Bible says: "And a little child shall lead them." So if we, in our simplicity, can lead some of you who are more learned and wiser than ourselves to study a subject that will be of lasting good to you—and that probably would not have interested you but for coming here—we shall at least have done some little good to our cause.

Before calling on you to discuss the various subjects which will engage our attention this afternoon, let me just tell you in a few words my own experiences with regard to Vegetarian diet and cooking.

I believe that all girls, whatever their position in life, should be

domesticated; and especially should they be taught cooking. Invariably, they like it. I myself have a number of young girls in our business, and, besides teaching them the business, I teach all of them Vegetarian cookery. Any of them can now cook a nice savoury dinner without needing any instructions as to what to prepare. I leave it to them to use their own judgment. My rule is for them to take a week each in turn. One young girl, who is very delicate, seemed hopelessly ill about three months since. The food she took would not remain with her; she was so ill that her life was despaired of. I took her to our house for a week's trial of our diet. The first meal she had with us agreed with her, also the next, and the next, and so on. Besides the diet, I gave her vapour baths, and in less than a week's time she was a different girl. Another girl is always well and healthy while living with us, but as soon as she goes home and takes the flesh diet she is ill.

One of our vice-presidents happened to call on us unexpectedly one day, just as dinner was ready, and he stayed and shared our dinner, which a girl of fifteen had prepared. He was surprised at our *menu*, and said he had never had a better dinner in his life. I think these details show not only the healthfulness of Vegetarian food, but also the ease with which a knowledge of Vegetarian cooking can be acquired. Some people seem to think that the management of Vegetarian dishes is a difficult affair; but from what I have said you will see that it is not such a puzzling matter but that quite young girls can succeed in it if they receive proper teaching and have opportunity for practice.

After the President's address, the discussion on Vegetarian cooking was opened by a few introductory words from the Secretary.

Mrs. Ramsay remarked that beginners found some difficulty in arranging their experiments so as to be consistent with that economy of which beginners boasted so much.

Miss Lindsay, in reply, pointed out that the expense incurred by beginners usually arose from their choosing fruits or foods that were out of season, in their desire to select something very nice from the list of foods known to the rather limited dietary of the ordinary meat-eater.

Mrs. Ball then addressed the meeting, making a plea for Vegetarianism on the grounds of health, economy, and humanity.

The President (Mrs. Harrison) then called on Miss Lindsay to read a paper on the over-use of tea and coffee among women.

The following *menu* for a dinner was given by Mrs. Harrison:—

Soup (lentil or tomato), potatoe pie, roast marrow and onions, sprouts, artichoke with bread crumbs; apple pie and rice pudding.

Mrs. SANKEY gave the following recipe for stewed tomatoes :—

Mixture of tinned tomatoes put in a frying-pan with a little butter, a few fine bread crumbs, and as much fine-grated cheese as the bread crumbs; draw off the fire, have an egg beaten up, mix together; stand for a few minutes and serve. Very nice hot for tea, or, if allowed to get cold, makes nice sandwiches.

Mr. KNIGHT gave the following suggestions for three dinners :—

1. Bread and butter and roast potatoes as one dinner.
2. Macaroni cheese, carrots, and potatoes. Date pudding.
3. Lentil soup. Potatoes and onions baked together in butter. Fruit to follow at discretion.

The following *menu* for a dinner was given by Mrs. SANKEY :—

Green pea soup. Haricot beans, stewed, with onions, carrots and celery, served together. Mushrooms, roasted in the oven, with tomatoes added just before they are done. Potatoes, boiled or roasted; and any other vegetables. Onions taken out of haricot stew to make the same. Rice pudding, with stewed fruit.

Miss CHRISTIANA RAMSEY, one of Mrs. Harrison's apprentices, then gave the following *menu* for a Vegetarian dinner, together with a recipe for one of the dishes named :—

Pea soup. Cauliflower fritters. Haricot beans, boiled. Fried tomatoes. Mashed potatoes. Apple sauce and roast onions. Sprouts. Fruit pudding and custard, or rice.

Cauliflower Fritters.—Mix a batter the same as for Yorkshire pudding; boil the cauliflower, and use the flower only. Mix the flower and batter together. Add seasoning; and drop into boiling butter in a baking tin or frying pan in small quantities. Fry until lightly brown on both sides.

Mrs. CALLADINE inquired what was the best Vegetarian food for persons who came to their meals in an exhausted condition, and especially for those who had much brain work to do. What was the best substitute for the beef tea and mutton chops used by the meat-eater under these circumstances?

Miss LINDSAY replied that good Vegetarian soup was the best food to be taken under these circumstances of exhaustion. In well-boiled pea-soup it would be found that on the addition of vinegar the hitherto liquid soup would curdle; this showed that the nitrogen compounds, or flesh-formers, were present in the soup in a liquid form, being easy of digestion. Nutriment presented in a liquid form restored the exhausted digestive powers, and prepared them for further work, so that after the soup more substantial dishes might be taken which, without it, would burden the stomach. The fashionable practice of commencing dinner with soup was strictly physiological, and much to be commended. Soup, with plenty of bread, was a meal in itself, but with regard to any substantial dishes taken after the soup, two things should be observed. In the first place, they should be thoroughly digestible. The pulse foods, to become so, must be very thoroughly cooked, deprived of their skins,

and thoroughly broken up, either by long boiling, rubbing through a sieve, or beating in a mortar. In the second place, they should contain all the elements of food, so as not to throw undue strain on any part of the digestive apparatus. Thus, for example, the whole of the meal should not consist of rice or potatoes—deficient in nitrogen compounds; or of porridge, deficient in soluble salts. Dishes made by cooking the pulses or cereals with vegetables, or by mixing the cereals with fruit, were the best for the tired diner, and indeed for everybody. With regard to the stimulating properties of beef tea, these were not substituted by Vegetarian foods of this kind; but that was, perhaps, so much the better, for stimulants were merely an arrangement for over-drawing one's account with the sources of vital energy.

Mr. JOSEPH KNIGHT then described the process of baking gems, the apparatus for which was on view at the Vegetarian Society's Office, 75, Princess Street, Manchester. These gems are much recommended by Mrs. Knight. After a little more discussion, a vote of thanks to the President (Mrs. Harrison) brought the proceedings to a close.

The meeting was continued after tea, the proceedings taking the form of a conversazione. In the course of the evening questions were asked on various topics connected with Vegetarianism, and Mr. A. W. DUNCAN made a few remarks on the advisability of looking for vegetable substitutes for butter and milk.

No. 4.

THE CHURCH, AND THE LIFE OF THE POOR.

By the Rev. Professor J. E. B. Mayor, M.A.

THE next meeting of the course took place on Tuesday, December 6, at the Brotherton Hall, Fountain Street, Manchester. The lecture was upon "The Church, and the Life of the Poor," by the Rev. Professor J. E. B. Mayor, M.A., but in the absence of Professor Mayor, who found himself unable to attend personally, Mr. Joseph Knight read the lecture. The Very Rev. the Dean of Manchester presided. The usual dinner, which on this occasion was given to a number of clergymen and ministers, passed off very successfully.

The Very Rev. JOHN OAKLEY, D.D., Dean of Manchester, in opening the proceedings, said the Vegetarian Society corresponded in its structure and way of working with the United Kingdom Alliance. Like that organisation, from time to time it held meetings with the view of popularising its ideas and proposals. His presence was due to the invitation of Mr. Axon, the honorary secretary of the Vegetarian Society, and Mr. Knight, the secretary; and he was sure that all present were exceedingly obliged to the society for the very interesting and appetising specimen that had been presented to them of the possibilities of the Vegetarian diet. (Applause.) He was not himself a theoretical advocate of any doctrine, moderate or extreme, of Vegetarianism. His point of view was simply that of sympathy with that and every other attempt to promote a greater degree of simplicity in food, whether in eating or drinking, among all classes, and especially among the poor; and he commended to their attention the paper upon "The Church, and the Life of the Poor," regarded from the point of view of a Vegetarian. The Vegetarian, in the best construction of the word, did not strictly limit those who adopted the idea to the ordinary table vegetables, as was sometimes supposed. The main staples of vegetable diet, he supposed, were the cereals and grains of various kinds—wheat, barley, oats, peas, and beans, which were commonly known as the farinacea. (Hear, hear.) Milk and other animal products were also used. Professor Newman had given perhaps the best account of the word "Vegetarian." He said: "Vegetarian food consists mainly of four heads—farinacea, pulse, fruit, and table vegetables." He also said that a Vegetarian was "one

who confined himself to these four heads of diet. Yet, in fact, few Vegetarians do confine themselves to this diet: therein consists my difficulty in definition. We are open to the scoff of being, not Vegetarians, but Brahmins, who do not object to animal food, but only to the taking of animal life. Few of us refuse eggs, or milk and its products. This is highly illogical if we seek consistency with an abstract theory. I do not shut my eyes to it. The truth is, that in cookery we need some grease, and it is hard to eat dry bread without butter or cheese. Our climate does not produce the nicer oils. It is not easy to buy oil delicate enough for food, and oil (to most Englishmen) is offensive, from tasting like degenerate butter." That, he (the Dean) thought, was a very fair and reasonable account of moderate, intelligible, and practical Vegetarianism. (Hear, hear.) No doubt to a certain extent the immemorial practice of the Church confirmed some part at least of that theory. In considering the subject of Vegetarianism he took it to be simply a combination of temperance and moderation both in eating and drinking. There was certainly room for improvement in both these respects. Many a good modern dinner, otherwise quite refined, in no way open to criticism, was frequently ruined by the indifferent or even bad cooking of vegetables, or by the scanty provision of them. It must have been in everybody's experience to find that characteristic. The question had a great relation to the life of the poor. The poor almost entirely ignored vegetables, except potatoes, and they knew nothing of the value and importance of the products of the vegetable world. He did not think it was at all beneath the dignity of their ministerial calling to show up the defects in the life of the poor, and to show the poor that they had a great deal to learn and much to gain by hearing what the Vegetarians had to tell them. (Applause.) One of the most important aspects of Vegetarianism was that it called attention to improved breadstuffs. There was an immense deal of room for the improvement and correction of modern bakers' bread. (Applause.)

Professor Mayor's lecture was then read by Mr. Knight, as follows:—

Hard times, when the Church and her charities bear their full share of suffering, call on Christians to cast what they have of counsel or energy or means into the common stock. With Dido, the Church may say, "*Non ignara mali miseris succurrere disco,*"

"Not ignorant of evils, I have learnt
To pity and to succour the distress'd."

In the year 258 A.D. the heathen Prefect of Rome demanded of the Deacon Laurentius* the treasures in his keeping, granting a respite of

* Prudentius Perist. II.

three days. In the interval Laurentius mustered his almsfolk, blind and lame, paralytic and leprous. "Behold," he said, "the jewels of the bride of Christ: as their earthly life decays, their spirit is renewed. Here is wealth that fears no fire, that tempts no thief."

In the eternal judgment, we are taught, men shall be tried, not by professions, but by deeds. "Inasmuch as ye did it, or did it not, unto the least of these, ye did it, or did it not, unto Me."

And as with individuals, so with societies. Churches are judged, not by their pomp or power, but by the virtue that goes out of them to feed the hungry, to cleanse, to heal, to enlighten, to give patience under every trial, to make selfish ease and elegant refinement impossible for one member while other members suffer want and pain, in the absence of pure air and light and water, of all that softens and all that gladdens humanity.

In a domestic missionary sermon, Dr. Phillips Brooks said as truly as eloquently:—

The Church, which forty years ago had bravely cried out at the sin of slavery, would be more powerful than we can imagine in America to-day. The Church which to-day effectively denounces intemperance and the licentiousness of social life, the cruelty or indifference of the rich to the poor, and the prostitution of public office, will become the real Church of America. Our Church has done some good service here. She ought to do much more. Largely the Church of the rich, she ought to rebuke rich men's vices, and to stir rich men's torpidity. She ought to blow her trumpet in the ears of the young men of fortune, summoning them from their clubs and their frivolities to do the chivalrous work which their nobility obliges them to do for fellow-men. She ought to speak to Culture, and teach it its responsibility. She ought to make real contributions to the creation of that atmosphere of brotherhood and hope and reverence for man in which alone there is any chance that the hard social and economical problems of the present and future can find solution. If she can do such things as these, she will be following in the steps of all the largest-minded, deepest-hearted Fathers of the Church, all the way from St. Paul down. That is the true Apostolical succession.

In the few minutes allotted to me I can only touch briefly on some methods by which the Church may sweeten and beautify the lot of the poor, by employing and quickening the dormant sympathies of the rich.

The most elementary needs of all life, vegetable and animal, are fresh air and water and clear light. These are common gifts—as reason, conscience, love, are common; yet, alas! not so common as God and Nature meant them to be. We may not all dare, with Charles Kingsley, to carry a huge auger with us, and force the bedridden to breathe more freely by drilling a hole through the outer wall of their hovels. But we may all study sanitary laws, under the guidance of Count Rumford or Edwin Chadwick, or B. W. Richardson, or John Ruskin, or Mrs. Buckton; we may enforce the statutes against the pollution of air by noxious

fumes, or of running streams by sewage or chemicals; we may purge the dust-heap of animal or vegetable waste, urging the claims of Mother Earth to the food which poisons the air. In towns we may for the instant burn all vegetable waste, and organise a service for its systematic collection for sale to farmers. Here we have much to learn from Chinese economy.

We may with the Kyrle Society carry beauty into earth's waste places. Where tin cans and dead cats have been the only produce, we may plant fruit bushes and teach the best methods of cultivation. Let us once believe with the American economist, Carey, that "man is the most valuable commodity," and with a French writer cited once and again by him that "products are made for man, not man for products," and our whole prospects will brighten. In going down to the depths with a cry of *sursum corda* we shall be buoyed up by a confident hope. If nature, if the God of Nature, be for us, if man was never designed to be degraded in order to create wealth for his brother man, we may dare to appeal to the aspirations of the poor slave of labour, and to the conscience of the taskmaster; the mere acknowledgment that all is not well is a first step to a cure and a pledge of better things to come.

The fourth necessary of life is wholesome and sufficient food. England is at this day *magnas inter opes inops*, "destitute amidst boundless wealth." Many are starving for want of food, while fertile lands, in Essex and elsewhere, are abandoned to the primæval curse of thorns and thistles. The land wants work—work wants the land Surely the Rev. H. V. Mills,* or M. Papin, or the Rev. W. C. Stubbs, or some other ingenious pioneer, will teach us how to bring our waste labour on to the waste land, and again make the wilderness blossom and bear fruit. Let workhouses become, as in Holland, houses of work, where all food, clothing, furniture, tools, are produced by the labour of the inmates, for their own use, not to compete with general trade.

Our wasted food would suffice to feed hundreds of thousands. I was taught by my mother always to clean my plate at meals. This simple home lesson would make thrift natural to a child. He should learn also to reverence a morsel of bread, as Thomas Carlyle did; to pick it up from the road and cleanse it as a feast for the birds. Even Mr. Gladstone's sermon on mastication would make a little go a long way. Fortunes have been made by turning waste products, as the refuse of gas tar, to account; every household would be better able to meet a strain if there were no leakage of waste.

I never see weeds but I long to root them up: at worst they are rich

* "Poverty and the State, or Work for the Unemployed." London: Kegan Paul, 1886.

manure, whose proper place is under ground; but, as an expert declared in this room on the 25th of October (*V. M.*, 1887, p. 393), "There are many valuable food products among the herbs of the field, if people would only find them out and use them." Here is work for the science of botanists and the observation of travellers.

If the country imported neither food nor drink, the money saved would revive all home industries. Our roadways, railways, waterways, should be lined with fruit trees; the cherry and the apple should grace our parks instead of the barren plane or sycamore; our walls and roofs should be clothed with vines and tomatoes.

Farming is ruinous, because the cost of carriage and the middleman swallow up the profits. Let us take fruit with every meal, and buy direct from the growers. Let us add to the beautiful Flower Mission a homely, utilitarian sister, the Fruit Mission, children of the rich carrying fruit to the children of the poor. There is no overproduction of apples and pears, as you would find if you took tons into London slums.

When I was a boy I supposed that my lot in life would be that of a country curate. I resolved to live on oatmeal, more cheaply than any one in the parish. Whenever the Church has been truly great, her teachers have been men of simple life. The apostles and their Master, the fathers of the Church, the founders of monastic orders, Wiclif, Luther, Calvin, Latimer, George Herbert, John Wesley—these all were *not anxious for their life, what they should eat.** The same may be said of Oriental and Greek philosophers, and of the masters of learning in all ages. It may not now be possible (see Wesley's 129th sermon) to buy for a penny parsnips enough to last a week; but the literature of the Vegetarian Society teaches us how to spend sixpence; how to reduce the cost of orphanages, hospitals, and missions; how to live on sixpence a day; how to live on a shilling a week; how to cure the drink crave. The money spent by the poor in harmful stimulants and narcotics, or in strong drugs, like tea and coffee, which do nothing to build up the frame, would supply bread and fruit in abundance for all the hungry. The Church should learn from Mr. Hoyle that the drink traffic not only destroys family life, ruins health and self-respect, converts wholesome grain into poison, but diverts money from the wage fund. The Caledonian Distillery, turning out spirits to the yearly amount of one million five hundred thousand pounds, employed 150 hands; cotton goods to the same value would give work to 7,500 hands; that is, the cotton-spinner pays 50 men where the distiller pays one. Which deserves best of the country? Yet Premiers delight to honour with titles not

* Matt. vi., 25.

the beneficial, but the deadly, trade. The Church Catechism philosophically includes under our duty to our neighbour that of keeping our body in temperance, soberness, and chastity. If Churchmen had always remembered this, the glee "with a jolly full bottle" could never have been associated with the toast of "The Church." If we learn what our body requires, and never exceed that limit, our presence at Circean feasts will be a tacit rebuke, as that of Cardinal Manning, with his glass of water, is. Gordon never went to dinner parties; but there is a work to be done there. The poor also will find abstinence and thrift easier, when those who have money to indulge abstain on principle.

One example I will give of the effect of a leaflet on the comfort of a home, and then pass on from the subject of diet. In the *Weekly Times and Echo* for Nov. 26, J. Hayward, a coalheaver, writes: A paper of the Food Reform Society fell into his hands, stating that white bread caused indigestion. He bought brown bread and obtained the promised relief. On changing his residence, he found it impossible to procure brown bread. His indigestion returned, and bread for seven mouths cost him six shillings per week; often the children had short commons. His wife bought some whole-meal, and after a time became "quite an expert" in baking. Four shillings now went farther than six had gone. Having saved the baker's profits, he determined to save the miller's. He bought a mill and a sack of wheat, which he had just finished at the time of writing. He had laid by enough to buy two sacks, and bread only cost one-half the price of baker's white bread. He has no need to go to "his uncle's" on Monday. He urges his readers thus to help themselves, instead of scrambling for doles.

It is much to be desired that every minister of religion would buy at least one number of the *Weekly Times and Echo*, and keep constantly before him Dr. Allinson's general rules of hygiene and of diet, and his five dietaries. Many confess that they owe recovered health to these few simple directions without drug medicines.

In what remains I will only touch on heads of argument, which others may expand.

Quack Medicines.—The temperance and religious papers abound with quack advertisements. Surely the Church might teach with Crashaw, "That which makes us have no need of physic, that's physic indeed." "Prevention is better than cure."* You cannot *do* ill and *be* well.

Gambling.—The large space devoted to "sporting news" in the public press, and the pompous obituaries of jockeys, prove the necessity of a crusade against betting.

* See a tract with this title, by Dr. Ackworth. (Vegetarian Society.)

Schools.—Mr. Blackley complains*: "Smatterings of things which at best prove serviceable to the few we spend our time in dinning into the minds of all." Such useless subjects are elementary science, analysis of sentences, geography. Instead of these teach temperance, thrift, plain cooking of necessary food (bread, porridge, frumenty, fruit), nursing (first aid to the wounded), health, diet. Add to every country school a garden, in which boys and girls should learn to dig, and graft, and prune. Every school, high and low, should supply industrial training. If the fruit hangs to rot in country orchards, because it does not pay to gather it, gutter children will be only too happy to clear the trees.

Sundays.—Mrs. Booth, of the Salvation Army, points out how Sunday is wasted in church by "good" people, who might be rescuing the perishing, caring for the dying. Far too many sermons are preached. If the afternoon were devoted to public readings from divines, or from sacred poets, or to accounts of saintly workers of every age and all sections of the Church, educated hearers would be interested, and might be stimulated to a generous rivalry. Coleridge and Charles Lamb revived public interest in many forgotten writers. Mr. Spurgeon has made the Puritans his own. Ninety-nine hundredths of the Church's treasures lie rusting unused. Mr. Darwin, at the end of his life, could not profess remorse for any great sin, but wished he had done more for his neighbours. Here culture may serve the Church.

Lent also is wasted, or used only by a section of the Church. But seasons of voluntary abstinence from customary indulgences, as Seneca knew, can break the subtle tyranny of habit. Retreats, as recommended by the great preachers under Louis XIV., afford leisure for calm reflexion and amendment of life.

Temperance.—If the whole Church with one voice demanded Sunday closing and the abolition of the grocers' spirit licence of 1861, they would certainly be granted, and a vantage ground be gained for further attacks on the banded forces of drink. The Truck Amendment Act, the most recent gain of Temperance workers, requires to be made known and enforced in every county.

Chastity.—Vigilance Committees, the Girls' Friendly Society, White Cross Army, Social Purity Alliance, have a great work to do. Miss Ellice Hopkins and Miss Hubbard have addressed plain practical advice to mothers and to the mistresses of elementary schools. On no subject

* "Thrift and Independence," 1880; a volume of the People's Library, S.P.C.K. In the *Times* of 2nd Dec., 1887, p. 8, is a review of the report of the Select Parliamentary Committee, appointed in 1885 to consider Mr. Blackley's scheme for National Providence Insurance. The committee recommends that thrift and insurance should be taught in every school.

is a word in season likely to yield a more abundant harvest. For ignorance is a main ally of the tempter.

Pauperism.—Henry Fawcett (see his book, "Pauperism, its Causes and Remedies") by the post office savings bank, post office investments in government stocks, and kindred institutions, did much to awaken the spirit of independence among the working classes. Even Japan has its government savings bank; so widely does a fruitful idea spread in this age.

Co-operation (see Holyoake, "Self-help, or a History of Co-operation in Rochdale") is counteracting the war of classes which competition fosters. Mr. Sedley Taylor,* and Prof. K. V. Böhmert, of Dresden, can teach us how Leeds and Leicester in their Industrial Co-operative Societies, the Paris and Orleans Railway, the Maison Leclaire, the piano factory of M. Bord, Cassell's publishing firm,† share profits between capital and labour. Sweaters who live by starving the poorest of the poor are out of place in a free Christian land.

Lodgings and Labourers' Homes.—The Waterlow Company, the Peabody Trust, the Artisans', Labourers', and General Dwellings Company at Shaftesbury Park, have improved the homes of the town poor. Common lodging-houses are now clean and wholesome. Miss Octavia Hill and her friends, by strict exaction of rent, and by increasing accommodation as tenants prove themselves worthy, elevate the tastes and aspirations of whole neighbourhoods.

Emigration is assisted by the S.P.C.K., which provides chaplains to speed the vessels on their way, and others to meet them at their destination; also books of direction and maps.

The deep-sea fishermen have a special mission fleet told off for their service. St. Andrew's Mission is active on the Thames. And now governments have agreed to make the trade of the *coper* illegal.

Colleges for working men and women are amongst the many fruits of the ill-requited toil of Frederick Maurice. The university extension lectures, the Nottingham and Sheffield colleges, the Birkbeck Literary and Scientific Institution, the Working Men's Club and Institute Union work in the same direction. When Bishop Moorhouse went to Sheffield, he turned to account his rare gifts of expression and delivery by opening elocution classes for the cutlers. A Janet Hamilton or an Elihu Burritt would find few impediments now in the road to learning. Let us claim

* "Profit-sharing between Capital and Labour." Kegan Paul. 2s. 6d.

†Messrs. Cadbury, Perry, and Tangye, of Birmingham; Palmer, of Reading; Salt, of Saltaire; Crossley, of Halifax; the Bon Marché of Jacques Boucicault in Paris; Krupp at Essen, are some of the firms which provide generously for their workpeople.

for all countrymen of Shakespeare, Bacon, Barrow, the right to share the inheritance of these great names; let us have penny readings to make their best thoughts known; by Caxton brigades and colporteurs let us carry them to those who dare not cross the threshold of a bookshop.

The School and College Missions.—The great Richard Rothe feared mockery for the suggestion that University life should be combined with service of the sick in hospitals. But since Uppingham set the example, some thirty missions have broken ground in London, Bristol, Portsmouth, and other centres. Athletes have gone out in strong force to China. Edinburgh stands at present alone with a medical mission. Ladies are going forth equipped for the Zenana Mission, and the demand far exceeds the supply. To give direction to these efforts we need mission libraries, such as are in course of collection at Halle and Strasburg; and a general periodical survey of the whole mission field.

A new *Political Economy*, less heartless and shortsighted than the Malthusian, is called for. Mazzini, Toynbee, Jevons, Carey, knew that consumption, not production, is the cardinal point on which the science should turn. By guilds and brotherhoods and bands of hope the Church can mend the facts of the world, and then theorists will of necessity take a higher flight. Sion College, the Church Congress, and the *Record* newspaper, bravely invite Mr. Champion to propound to the Church the Socialist panacea.

A catalogue of names, or of works of mercy, as they occur to me, will suffice to show how much I have left unsaid. Dr. Barnardo; Miss De Broen and Miss Leigh, in Paris; Mr. George Holland, of the George Yard, Whitechapel; Mr. Fegan, who has adopted the Vegetarian regimen in his Boys' Home; Mrs. Hilton's *crèche*; Miss Macpherson and Miss Hedenstrom; Miss Rye; Miss Ellice Hopkins; Mrs. Wightman; Miss Meredith's Prison Mission; Mr. Gregson, Mrs. Daniell, and Miss Robinson in the Army; Miss Weston and her Blue Jackets; Mildmay and Kilburn, and the Little Sisters of the Poor at Hammersmith; Cabmen's Shelters; Mr. Todd's Theatrical Mission; the National Health Society; the Red Cross; the Midnight Mission—these are but a sample of the agencies through which the Christian Church is labouring to help the humble store and mend the dwellings of the poor.

APPENDIX.

I add a list of a few books which may assist further research, or serve as a nucleus of parish libraries.

SOCIAL SCIENCE.

Barker, Thos. H., "Thoughts and Facts on Human Dietetics." Manchester: The Vegetarian Society. 1d.

Carpenter, Edward, "England's Ideal." London: Swan Sonnenschein, 1887. 1s.

(The author, sometime fellow of Trinity Hall, and curate to F. D. Maurice, lived for some years by manual labour as a cottager.)

Collyns, Rev. C. H., "Simplicity of Tastes." Manchester: The Vegetarian Society. 1d.

Davies, Rev. J. Ll., "Social Questions." 2nd Ed. Macmillan, 1886.

Gladden, Washington, "Working People and their Employers."

Guthrie, Rev. Dr., "The City: Its Sins and Sorrows." 6d.

Hope, Lady, "Our Golden Key." A narrative of facts, from "Outcast London." 2s. 6d.

—— "Our Coffeeroom." 3s. 6d.

—— "More about our Coffeeroom." 3s. 6d.

Jones, Rev. D. R., M.A., "In the Slums." Passages from the note-book of a London diocesan home missionary. 2s. 6d.

Kingsford, Mrs. Anna, M.D., "The Perfect Way in Diet." Manchester: The Vegetarian Society." 2s.

Newman, Professor F. W., "Essays on Diet." Manchester: The Vegetarian Society. 2s.

Papin, "Harmonious Co-operation between Capital, Intelligence, and Labour." London: W. Straker, Ludgate Hill.

Parkes, E. A., M.D., F.R.S., "On Personal Care of Health." 1s. (One of the "Manuals of Health" published by the S.P.C.K.)

Salt, H. S., "A Plea for Vegetarianism," and other Essays. Manchester: The Vegetarian Society. 1s. and 1s. 6d.

Solly, Rev. Henry, "Re-housing of the Industrial Classes; or Village Communities *v.* Town Rookeries." 6d.

Stubbs, Rev. Charles W., "Christ and Democracy." 3s. 6d.

—— "The Land and the Labourers: Records and Experiments in Cottage Farming and Co-operative Agriculture." 2nd Ed. With an appendix on Dairy Farming. 1s.

Williams, Howard, M.A., "The Ethics of Diet," a catena of authorities deprecatory of the practice of flesh-eating. Manchester: The Vegetarian Society. 5s.

TEMPERANCE.

The English books on sale are given in "A Complete Catalogue of Temperance Literature" (National Temperance Publication Depot, 337, Strand, London, W.C. A much larger chronological list of books, in many languages, in Gustafson's "Foundation of Death.")

Grindrod, R. B., M.D., "The Nation's Vice: the Claims of Temperance on the Christian Church." 5s. Grindrod's classical prize essay, "Bacchus," is out of print.

"Report of Convocation of Canterbury." 1s.

"Medical Temperance Journal." Quarterly. 1s.

Smith, Rev. James, M.A., "Temperance Reformation, and its Claims upon the Christian Church." Prize essay. 5s.

Richardson, B. W., M.D., F.R.S. "Brief Notes for Temperance Teachers." 8vo. 3s. 6d.

—— "The Temperance Lesson Book." 1s. 6d.

—— "Results of Researches on Alcohol." 6d.

Gustafson, Axel, "The Foundation of Death: A Study of the Drink Question." 4th Ed. 5s.

French, Rev. R. Valpy, D.C.L., "The History of Toasting." 1s. 6d.

—— "Nineteen Centuries of Drink in England." 10s. 6d.

Authors of other important works: Mrs. C. L. Balfour, Dr. Dawson Burns, Dr. W. B. Carpenter, Sir Andrew Clark, Archdeacon Farrar, J. B. Gough, Dr. B. W. Hargreaves, Canon Hopkins, W. Hoyle, Dr. N. Kerr, Dr. F. R. Lees, David

Lewis, J.P., Joseph Livesey, James Miller, F.R.S.E., Robert Rae, Dr. B. W. Richardson, Dr. J. J. Ridge, James Samuelson, Sir Henry Thompson, Mrs. Wightman, Canon Wilberforce.

Lives of Lord Shaftesbury, J. B. Gough, Joseph Livesey, Father Mathew, Elihu Burritt, Francis Murphy, T. B. Smithies.

THE INNER MISSION IN GERMANY.

The Germans have a literature of large compass and of sterling merit, on "home" (or "inner") missions. The following are some of the principal works, which will serve as guides to the collector, and which ought to be found in all libraries of Social Science :—

Uhlhorn, Die Christliche Liebesthätigkeit in der alten Kirche. Stuttgart, 1882. ("Christian Charity in the Ancient Church.")

E. G. Lehmann, "Die innere Mission im Licht ihrer Geschichte." Leipzig, 1876. ("The Inner Mission in the Light of its History.")

E. G. Lehmann, "Die Werke der Liebe" ("Works of Love"). 2nd Ed. Leipzig, 1883.

Th. Schäfer, "Leitfaden der innern Mission" ("Outlines of the Inner Mission"), Hamburg 1887, and many other works by Schäfer, who publishes a monthly journal, "Monatsschrift für innere Mission, Gütersloh, Bertelsmann."

Also many works of Wichern, the founder of the Rauhe Haus at Hamburg, and of Fliedner, the founder of the Deaconesses' Home at Kaiserswerth, with their biographies. See more titles in F. Oldenberg's article "Mission, innere" in Herzog's "Real-Encyklopädie für Protestantische Theologie und Kirche." 2nd Ed. x. 18-30 (Leipzig, 1882).

Last year, for the first time, over 100 pastors, candidates of theology, university students, and others, attended, for some ten days or a fortnight, courses of lectures on the "Inner Mission" at Hamburg, Hanover, Dresden, and Berlin. They were shown the working of many charitable institutions, and lived together during the course. In like manner Scripture readers and district visitors have for several years resided for some time during the summer at Oxford or Cambridge, to receive theological training.

The Rev. J. W. Horsley, M.A. (the author of "Jottings from Gaol") gave an interesting and amusing account of his experiences of prison life life as a prison chaplain. For ten years happily he had been in prison, where the population was the healthiest one could have. (Laughter, and "Hear, hear.") Very seldom more than seven in a thousand were ill, and he considered they had as good health as at a health resort. That in a large measure was due to the dietary, which was in the main composed of Vegetarian products. (Hear, hear.) He was glad to say the prison authorities used wholemeal bread in the prisons, and he strongly condemned the white bread sold so largely. He considered the white bread was not formed for man (hear, hear), and he concluded his remarks by stating that the great error among the people was that they were too gross feeders, living on heavy nitrogenous foods, discarding those foods which God had given to them near to their hands. (Applause.)

The Rev. J. W. Catton, M.A. (St. Paul's), said he, too, had had some

amount of prison experience, having acted as chaplain at Dartmoor, and he could corroborate the good effects of the prison dietary upon the health, and, he might say, godliness of the prisoners. The difficulty that confronted them was that of influencing the people. They were all exceedingly anxious to improve the condition of the poor—to make them happier, morally and physically. There was, to his mind, only one way in which they could influence the poor in this matter, and that was by the force of example. (Applause.) They must begin at the top and go down to the bottom. Let the higher classes of society adopt more simple methods of living, and then they would find it would spread to the lower classes. (Applause.)

After a short discussion, and the usual votes of thanks, the proceedings terminated.

No. 5.

VEGETARIANISM AS A PHASE OF HUMANITARIANISM.

By the Rev. James Clark.

THE Manchester Vegetarian lectures were continued on Tuesday, December 20, at the Brotherton Hall, Fountain Street, the Rev. JAMES CLARK dealing with the subject of "Vegetarianism as a Phase of Humanitarianism." Mr. WILLIAM E. A. AXON occupied the chair. After the usual Vegetarian dinner given by the Executive to about 110 guests, Mr. Clark delivered his lecture.

Mr. CLARK said:—If I had been much disposed to be influenced by the times, I should have felt very downhearted at beginning my lecture here to-night, for as I came along the streets I found that the evening papers were doing their best to get themselves sold by announcing the full details of a pugilistic combat which has taken place in France. At first, I thought this bodes ill for any kindly reception of a doctrine of humanitarianism, whether associated with Vegetarianism or aught else. But it is not so bad as it looks at first sight. The mere fact that when blackguards want to pummel one another and give gamesters an opportunity of earning their bread they have to quit the country and go elsewhere, is a sign of the times, a sign which I take to be favourable to the growing humanity of our fellow men. I might pause for a moment to say that the countenance this kind of brutal business has received from one very highly placed in the country would also seem to be an unfavourable omen; but I trust in God's providence that there will be plenty of time for the hand to get washed and sweetened, that was given to one of those vulgar champions to shake, before it comes to be kissed in homage by honest and respectable men. One cannot but feel sorry that such potent social influences for good should be given to a cause so unworthy. And yet, we cannot but rejoice that one possessed of so much social influence has little influence of any other kind, seeing that that influence is at present so ill-directed.

The subject which I have to speak about—"Vegetarianism as a Phase of Humanitarianism"—will, of course, deal with the Vegetarian system, as it forms a part of humanitarianism. As Vegetarianism means a

system of diet in which fish, flesh, and fowl are absent, so humanitarianism means those principles of conduct which have been especially associated with the quality of being human, or belonging to humanity. I know that some people doubt whether the gentle sympathies which are included under the name of humanity can with propriety be attributed only to man and woman. There are many people who think that humanitarian sentiments are more widely extended in certain kinds of animals than in our fellow-men. I believe that it is appropriate to speak of these feelings and the course of conduct which they dictate as humanitarianism, because in human nature, far above any other nature upon the earth, there is an intensity of sympathy — a capability of acting from higher motives and worthier feelings than in any other creature on earth. And since we have these faculties in a larger degree than any other creatures, and since they are, in their larger extent, a peculiarity of the human race, it is with propriety that we associate our humanity with this particular kind of development of nature. The humanitarian is one who gives free play to his sympathies— the gentle sympathies that are in him; but we know that a large part even of the intellectual world have thought it their duty to protest against going forward too rapidly in this direction, and of becoming too much under the influence of the gentler feelings, and of the higher desires, lest in doing so we should become ourselves a prey to the more brutal part of our fellow creatures, or to the brutes which have the same kind of instinct. There is, however, a universal recognition of the desirableness of sentiments of humanity, of the worthiness of them, and of their being allied to all that is holy. Upon that recognition one may proceed to say that a larger development of this portion of our nature would be advantageous to society, that it would increase marvellously the number of our joys, that it would diminish that groaning under which the whole creation is said to lie, and largely because of our heedlessness in our government of the inferior creatures. It is most encouraging in discussing this question to look back some fifty years. Those who look back upon society fifty years may find that we have made an unmistakable advance. (Hear, hear.) What has become of the bear-baiting, the bull-baiting, the badger-baiting, the cock-fighting, and such like amusements? They have been stamped out by an indignant society which protests that amusements ought not to be obtained at the cost of the suffering of any of these creatures, and that it is a degradation to those who share in them. Cock-fighting lingered longer amongst us, and there are many people who, up to this day, are not ashamed to acknowledge that they like to see a game of cock-fighting. I have heard men in social position

acknowledging they were sorry the law forbids this; but I am glad to add, the men who say this are few and far between. (Hear, hear.) The general voice of society is against that kind of amusement; and so one might enlarge upon the progress that has been made, and the stand society has taken with regard to various forms of brutality which once were counted to be amusements. It is still thought to be good amusement to hunt a fox to the death, and to share in its last agonies. Not because the fox is supposed to be a pest, for he is very carefully preserved lest any injury should befall him. It seems to be deemed a very laudable thing that intelligent men and gentle women should indulge in a chase which is to put to death one of these creatures. I do not know how they distinguish between bull-baiting and fox-hunting; though human nature is singularly able to find excuses. But, as it is with bull-baiting and bear-baiting, so it will be with fox-hunting, for I believe that what has taken place is an earnest of what is to come; by and by we shall see this brutal amusement dispensed with, and if these creatures are to be killed at all, they will be killed, not for sport, but as a mere act of necessity, because the requirements of society are supposed to demand it. That will be a very different way—acting under need, rather than having a joy in the destruction of creatures that are all as capable of feeling as ourselves. This idea of humanitarianism is not new. Buddha enforced it as being one of the highest moral virtues to abstain from taking the lives of animals. There is a seed of this in the Mahommedan religion, in which Mahomet also inculcates the gentle and kindly treatment of beasts; and I suppose there is nobody who has read any literature at all who is not familiar with the extraordinary affection which exists between the Arab and his camel. This is one of the domestic influences of that kind which is enjoined by the Mahommedan religion, and which is generally practised by the Mahommedan people. Is there nothing of this in our own religion? There is the commandment for the observance of the Sabbath, where we find that there should be a day of rest for the patient labourers who help man. I hold that to be a merciful provision by the goodness of God, and as a design to show we should treat them as having a claim upon our sympathies second only to that of those most closely allied to us. It lays down a principle, and not merely a particular application of a principle, for we are told that He cares for His creatures. We are no people of God if we are not God-like. If we are not like to God in these humbler things, it is not likely that we should attain any higher and more important things; but if we begin in humbler things it is likely we may rise to a larger share in showing a divine kindliness to our fellow creatures. We learn to love our

parents, and our children, and even our friends, and strangers of our own race, from duty, from sympathy, from goodwill, and this may be coupled with an utter indifference to the state and condition of all creatures below the human race. We can find this in some of our books of divinity, and in many of our books of philosophy, that some who have written like saints and have lived like saints have absolutely denied that animals have the right to receive any sympathy from man, and that we have an absolute right over them to do with them as we will. In fact, the same kind of feeling appears to have been manifested towards animals as was shown by the slave-owner towards his negroes, and this right to use them went even to the taking away of their lives. That system of slavery, which has been denounced by Christians as inhuman, is still, I am afraid, the attitude of mind of many persons regarding the lower animals, and has been in past times in connection with Christianity the attitude of those who have occupied the highest places in our churches. But another voice than that made itself heard from time to time, and has made itself heard more powerfully in these later days than ever before, with an intensity growing at a rate it has never grown at before. I have an extract from the works of Jeremy Bentham, who, in 1780, propounded his views about the rights of animals. Bentham says: "Under the Gentoo and Mahometan religion the interests of the rest of the animal kingdom seem to have met with some attention. Why have they not, universally, as much as those of human creatures, allowance made for the difference in point of sensibility? Because the laws that are, have been the work of mutual fear; a sentiment which the less rational animals have not the same means as man has of turning to account. Dr. Whewell says: "We are bound to augment the pleasures of men, not only because they are pleasures, but because they are human pleasures. We are bound to men by the universal tie of humanity, of human brotherhood. We have no such tie to animals." That is the answer of the Christian apologist of the later times, in which he denies that we have any obligation to treat animals with kindness. I am glad to say that later than this, John Stuart Mill examined Dr. Whewell's principles, and answered them, and showed that animals, having the power of feeling, are entitled to be treated with kindness, forbearance and consideration—(hear, hear); and I hold that to be a nobler deliverance than the one to which it is a reply. Later than this, we have the testimonies of Lamartine, Michelet, and Victor Hugo, all of whom have made vigorous protests against the cruel treatment of animals. Victor Hugo, in a poem called the "Toad," which I take from a translation, says:—

We see the surface, but the life below,
The common soul of all things, who can know ?
The clouds were rosy with the sunset's glow—
The stormy day was over. Evening came,
The west transformed the rising mist to flame.
Close by a rain-filled rut, an ugly sight,
A toad, half dazzled, looked up at the light.
The leaves grew purple, and their stems were red,
The very rut a grass-lined mirror shone ;
The evening, like an unfurled banner spread,
Subdued the bird's song to a lower tone.
Nature was hushed ; and gravely dreaming there,
Free from all sense of shame, or fear, or care,
The harmless toad gazed at the orb of day.
Perhaps this thing we curse felt himself blest,
Linked with the Infinite, like all the rest.
The lightnings on the meanest vision play,
The foulest creature in his eyeballs blear
Holds all the vastness of the starry sphere.
A man who chanced to pass descried the brute,
And shudd'ring, crush'd its head beneath his foot ;
He was a priest, and read a book of prayer.
A woman, flower in boddice, next came by,
And with her parasol put out an eye.
The priest was old, the woman young and fair !
Then came four school-boys, cheerful as the sky,
Giddy with hope and sport, and spirits high ;
Loud, free, and happy, how get through the day,
Save by tormenting weak things in their way ?
The toad was crawling slowly, seeking shade ;
The children spied it out, and shouting ran,
'Here, let us kill the nasty thing,' they said,
'And since he's ugly, hurt him all we can.'
Then laughing, each—the child laughs when he kills—
Begin to prick his blinded eye anew,
The passers-by applauding, laughing, too.
From every wound the loathsome blood distils,
At every blow the froth starts more and more.
'The vicious thing, he foams !' the children roar.
Head crush'd, eye hanging, one leg torn away,
Thro' grass and briar he forced his wretched way ;
It seemed that death disdained so foul a prey !
At length he reached the rut, and plunging found
Relief and shelter in the swampy ground.
The children, rosy-cheeked and flaxen haired,
Said 'twas the finest sport they'd ever shared ;
Talked all at once ; at last, devised to throw
A good large stone, to give the final blow.
All watch the creature in its hiding-place,

With cruel transport in each youthful face ;
Then one runs off and brings a huge stone back,
And cries—'Look out, we'll see how this will do.'
That very moment down the rugged track
A wretched ass his heavy cart-load drew—
Old, meagre, lame, worn-out ; a scare-crow quite,
Each step he took seemed like to be the last—
Nearing his journey's end in piteous plight,
While heavy blows rained on him thick and fast ;
The road was rough, the muddy ruts were deep,
The wheels came creeking, grinding down the steep ;
The ass could hardly stand, the carter swore,
The patient creature whip and burden bore,
Lost in deep dreams beyond our mental ken.
The children heard the cart, turned round, and then
Loudly called out, 'Nay, do not throw the stone,
Just wait a moment, leave the toad alone,
The wheel will crush it, 'twill be better fun,'
And then they waited breathless, till 'twas done.
The cart came onward through the rut, the ass
Saw the toad lying where the wheel must pass,
And bent his head, poor sufferer, to see
A thing that suffered even more than he ;
He seemed to sniff the battered bleeding mass.
Then gathering all his strength and forcing back
The heavy cart from out the beaten track,
Despite his driver's shouts and blows, the ass
Stiffened his bleeding muscles 'gainst the load,
And turned the wheel aside and spared the toad,
And 'neath a shower of blows pursued his road.
Then one small hand the stone it held let fall,
And of those children, one—he tells the story—
Heard, sounding from the great sky's arch of glory,
A voice that said, 'Be merciful to all!'"

We may say in this incident we begin at about the lowest appreciable point of sympathy; but I believe that the kindness which the ass had is grand by comparison, in that, through fear, dislike, or loathing, we have been accustomed to treat so many of the creatures that live as though they were our enemies, and as though ill-treatment were the best for our hands to do. It is very grievous that the power we possess should be so largely abused, and it is very grievous to think what such creatures as the ass have to bear at our hands in return for the patient, unwearied, and valuable service they have performed for our race during many generations. We should have much to regret for the way in which these creatures have been treated by us. But there is another side of the story, one which will be of very much greater importance, and it

is—What is the influence of that course of behaviour to these humbler creatures? What is the reaction upon ourselves from pursuing this kind of conduct? I suppose most mothers in these days dislike to see their children doing any kind of hurt to animals, and they fear that the effect of this practice will be to make their children ill-disposed towards those of their own household and of their own kind. When a child begins to catch flies to pull them to pieces there is no well-trained person—mother or father—who would not think it good to check the child, and to seek to turn its enjoyment and pleasures into some other channel than that of inflicting torture upon even a fly. I think it may be assumed that this is a general sentiment, and that the feeling is strong, that it reacts upon those who perform those deeds so as to render them hard and inhuman. That is generally, the claim of the Vegetarians, who assert that their system is a part of humanitarianism. It is that these creatures of God are entitled to be treated with kindness, sympathy, and gentleness; that we have no right to inflict pains or penalties upon them except in cases of hard necessity. That is our case. We say nothing of pain that is of necessity; and we admit that some pains are often caused from feelings of sympathy and kindness and goodwill. We acknowledge that those who practise the healing art are constrained by very necessity to inflict pain to give relief. They may become familiar with particular cases, but they never lose the thoughts of kindness and patience to spare those upon whom they operate. It is not in the mere fact of inflicting pain that there is wrong done, but the wrong arises when it is done without due cause, without necessity. Just observe what has been done in recent years in connection with surgery, and the many methods which have been discovered by medical men for alleviating pain and suffering. To the surgeon we are indebted for his thoughtfulness, for all his sympathetic regard for those who are to be treated in a way which is very painful; in fact, to inflict pain in order to heal. We see how the surgeon has been inspired by a benevolent consideration, so that by the use of anæsthetics he may take away pain from those who have to undergo painful operations.

I suppose no one will deny that in the procuring of animal food there is a considerable amount of suffering and pain to be inflicted. We read from time to time of very brutal things that were done to make veal, of the fearful sufferings of beasts that were brought over the sea, and that were carried upon our railways. The cry in which the Vegetarian Society has taken a part, and which it has helped to make loud, has resulted already in many ameliorations—in the diminishing of suffering to a considerable extent; but who can now see our cattle driven through

our streets, after they have undergone the torture of being crowded together in a steamboat, of being jolted and knocked in all directions, of being driven (wild with fear) they knew not where, and of being goaded by the blows and prods of those who are said to have the care of them, but who are often very callous and tyrannical in their habits. Who can have observed a flock of sheep making their way through our streets without seeing that there must have been a vast amount of suffering in their course from the pasture to the market. Who would like to sit down to his dinner of animal food, and try to trace in imagination the means by which it has come from the cattle market to that table? Who would like to see what the animal has undergone in the slaughter-house, where it shrinks from the smell around it, anticipating the fate which awaits it? Who would like to think of the way in which it regards its murderer as it looks up to him when he is about to inflict upon it its deathblow; and who would like to think of all that follows, even after it has been slain and dressed? Who would like to think of all the disgusting appurtenances of the slaughter-house and regard these as having been preparatory to the enjoyment of his ordinary meal? We cannot but believe that this thought of the associations I have referred to would take very much away from the possibility of our enjoyment of these things. I remember an incident in the life of the Rev. Mr. Jay, of Bristol, that I shall never forget. He said that, being in Portugal, he happened one day to be taking a walk, with a young, accomplished, and delicate lady upon his arm. As they went along they saw a number of people running to one centre, and, on his turning round to see what it was, the young lady said, "Oh! come on; they are only burning a Jew!" Is it necessary to pause to say anything about this fact? The young lady, in her reply, regarded this burning of a Jew only as a matter of course, a thing not to be thought of. The life of that poor Jew was nothing to her, because she had become familiar with scenes of that description. It is to be hoped that every Christian of this day would regard such a sight as being worse than the work of brute beasts, because the men had minds that should have taught them better. This eating of animal flesh, also, is very commonplace and ordinary, and hence is little regarded. So, I might say, is the eating of babies very commonplace and ordinary. Who shall say there is any harm in it? If, instead of being here in England, we were members of a cannibal community, we should say to those who question the right to eat babies, "Why should we not eat the good things that God has sent us, of the things that are so pleasant?" Am I overstraining the analogy of the case? I anticipate nobody would be so foolish as to imagine that I am

apologising for the cannibal; and I cannot but say that those who do like things on other animals have no better argument on behalf of killing these creatures than the cannibal has for the crime which he perpetrates. If that be so, I would like you to consider it apart from what your fathers or mothers did, and to consider it from the point of view that it is not necessary to do these things, and that the doing of them can be described by no other name than that of cruelty. If it were needful to be done, it would be wrong to call it cruelty; but, I ask, what can make it a necessity when you can live without it? Did you ever try to live without it? Nobody is entitled to say, "I could not live without it," unless he has tried. Some have tried, but so badly that they are not entitled to say that they could not live without it. There is another point in the humanitarian question—the fact that owing to the habit of feeding these animals for food, they come to be regarded in the light of food only, and lose nearly altogether their natural place. The practice of the feeding of prize cattle is, in my opinion, one that tends to debase the animal and the man. Where would be the natural intelligence of the horse or the dog if they underwent the same amount of feeding?

In conclusion, I can only say that when we have regard to the religions of the world, in which there is a long testimony in favour of humanity, gentleness and sympathy for the lower creature, whether it be our own Christian or any other religion, we find that all these religions have some testimony tending in the direction of humanity, and that they attain more and more as they bring men under the influence of gentle and kindly feelings in their dealings one with another. The animals that God has created, and over which he has given us lordship and dominion, are entitled to our sympathetic care and attention, as far as circumstances permit, and not to have pain inflicted upon them in any way needlessly, or even recklessly, without consideration or thought. The inflicting of that pain will rebound severely upon ourselves; and as a means of preventing this, and to prevent our fellow men debasing themselves, I commend the Vegetarian system, which, I believe, is worthy of your kindly consideration. (Applause.)

A hearty vote of thanks, moved by Mr. GIBSON (United Kingdom Alliance), and seconded by Mr. HOOPER, was accorded to Mr. Clark for his lecture. A few remarks from Miss B. Lindsay, the Lecturer, and the Chairman, brought the meeting to a close.

No. 6

FOODS.

By Dr. B. W. Richardson, F.R.S.

On the evening of Friday, the 20th of January, Dr. B. W. Richardson delivered a lecture in the large room of the Free Trade Hall, Manchester under the auspices of the Vegetarian Society. He was listened to with deep attention by a large and enthusiastic audience. Previous to the taking of the chair a musical programme, including glees, choruses, vocal solos, organ solos, &c., was rendered by a musical party under the direction of Mr. Henry Rickards (a member of the Executive of the Vegetarian Society), who presided at the organ. The services of these friends were highly appreciated. The Mayor of Manchester (Mr. Alderman J. J. Harwood) presided, and was supported by the Bishop of Salford (Dr. Vaughan), Canon Davenport Kelly, the Rev. James Clark, Canon Woodhouse, the Rev. J. Robinson, Mr. Alexander M'Dougall, Mr. F. Scott, Mr. Alderman Livesley, and Dr. Emrys-Jones.

The Mayor, in introducing the lecturer, said there was no doubt that we, as working people, ate too much beef and mutton; there could be no doubt about that, though he was not a great beef and mutton eater, and once for more than a year never tasted it. He did not eat a great deal now, and thought he was not any the worse for it. We ought to know what was the best food for us, and try, as far as possible ourselves, and induce everybody else to take that which was most likely to conduce to health and long life. (Applause.)

Dr. Richardson then delivered his lecture on "Foods for Man; a Comparison of the Animal and Vegetarian Systems of Diet, impartially Considered." After explaining that he was not a Vegetarian, he remarked that there were, according to the natural order, two classes of animals, one destined to receive its sustenance from the plant world, the other from the animal world. The animals that were of the most service to us, and were the strongest, were vegetable feeders, and man himself in many parts of the world was exclusively a vegetable feeder. Primitive man, wherever he was first cast, must of necessity have found his food in the plant world. We could not imagine him commencing his career learned in the arts of hunting, killing, and cooking the lower animal

creation for food. Man in his present state of organisation could subsist either on animal or vegetable food. If he were originally constructed on what might very properly be called the single basis, he had at some time in his history diverged from the single to the double basis, an evolutionary exploit which was quite within the bounds of the virtue of necessity. If man was originally constructed to live on plants, and had only departed from that system of diet from sheer ignorance and bare necessity, the question presented itself whether it was not time that in the light of brighter knowledge and happier circumstances he ought to go back to the first and truer condition. Evidence on that question could only be derived from two sources—the one physical, the other moral. In search for the physical evidence it was necessary to turn to the construction of man, and to ask whether by his build and construction he was formed for vegetable food or animal. With regard to the teeth, it must be admitted that the argument derived from them literally and truly cuts both ways. On the whole, he was bound to give judgment on the evidence of the teeth in favour of the Vegetarian system, for they seemed to him to be fitted for a plant or vegetable diet, and showed that the use of animal food was practically an accident or necessity, which would soon be rectified if the conditions were rendered favourable to a return to the primitive state. If from the teeth we passed to the subject of the process of digestion which goes on in the mouth, the evidence, as far as it went, was also in favour of the Vegetarian theory. The secretion of saliva was clearly a provision for vegetable food, not for animal; and from experimental observations which he had made he was of opinion that vegetable flesh-forming substances might be as easily digested when they were properly presented to the stomach as were the animal substances of the like quality. Taking into consideration the whole facts connected with the structure of man, the inference was justified that in spite of the very long time which man had been subjected to an animal diet he retained in preponderance his original and natural taste for an innocent diet derived from the first-fruits of the earth. From a moral point of view the argument about flesh-eating was strongly in favour of the Vegetarian theory. The food which was most liked was that which we called bread and fruit. In his long medical career he had known no instance in which a child had not preferred fruit to animal food, and it was a lesson learned from experience that the next natural diet for the young, after being removed from the natural milk diet, was one of fruit and bread. He had often heard the poor bemoaning their hard fate because they were deprived of flesh-food, at a time when they really had

in their hands a better and more wholesome food than their wealthier and more luxurious neighbours, if they only knew it. Unfortunately they did not know it, but they ought to be taught it. If an analysis were made of the primest joints of animal food, legs of mutton, sirloins of beef, rump steak, veal cutlet, and pork chop, we found in them as much as 70 or 75 per cent of water. There were some vegetables which contained more water—namely, potatoes, turnips, and cabbage—but there were others which contained much less water. Oatmeal, for example, contained only 5 or 6 per cent; good wheaten flour, barley, meal, beans, and peas, 14; rice, 15; and good bread, 40 to 45 per cent of water. Taking, then, the value of foods as estimated by their solid character, there were, it would be observed, a large class of vegetable foods which for solid value were incomparably superior to animal flesh. It must honestly be admitted that, weight by weight, vegetable substances, when they were carefully selected, possessed the most striking advantages over animal food in nutritive value. (Applause.) Up to the present time so much more skill had been developed in the preparation of animal foods for the table than had been bestowed on vegetables, that in order to give the Vegetarian system the faintest chance a new school of cookery would have to be introduced, in which there should be taught not only modes of cooking, but the actual dietetic value of everything cooked and sent to the table. The Vegetarian plan had suffered vitally hitherto from ignorance on that score. Some persons had been initiated into the system by being taught to try to subsist on vegetables containing from 90 to 95 per cent of water. They had failed, as a matter of course, and had thrown the blame on the system, not on ignorance in relation to it. Others had been inducted into it by being led to take, at first, vegetable foods extremely rich in flesh-forming substances, and, unable to digest what they had taken, had hastened to the conclusion that the food was too heavy and could not be borne. Mistakes of that kind should be prevented. Until that was done, many persons would always be found who, in spite of repugnance or other objection to animal food, would digest food that had been prepared for them by passing through the systems of other animals better than when they themselves took it first hand from the plant. In time the present centres for good Vegetarian diets would probably become schools for the nation, and he doubted not that the day would come when every hotel in the kingdom and every private dwelling would have its Vegetarian cook or housewife. It might be a long time before such a state of things came to pass, but it would assuredly come. (Applause.) Meanwhile men of practical science ought to be at work assisting with their

skill in bringing about that mighty reformation. (Hear, hear.) We now knew to a nicety the relation of the various parts of food needed for the construction of the living body, and there should be no difficulty, except the labour of research, in so modifying food from its prime source as to make it applicable to every necessity without the assistance of any intermediate animal at all. Changes quite as difficult had been accomplished by scientific research in the laboratory, and if men of science would, in patient research for a few years, follow up the artificial digestion and condensation of vegetable foods by synthetical imitations, assuredly the perfect production of perfect food from the vegetable kingdom, without the aid of the intermediate lower animal, would be another triumph of science over nature. In the presence of such a development, food of the best kind would become the cheapest of all products, and would be so under the control of man that new races of men constructed on better food than has ever yet been prepared would rise up to demonstrate the greatness of their triumph by their improved physical endowments and their freedom from certain diseases which would always occur so long as other living animal bodies were demanded for the reconstruction of the human body. (Applause.) Dr. Richardson proceeded to point out that if Vegetarianism were generally adopted in England we should then be practically independent of foreign food supplies—one hundred millions worth of precious body-feeding grain, spent at present on body and soul consuming strong drink, would, however, have to be retained in the national garner for life instead of death. (Applause.) After quoting figures to show the large quantity of diseased meat which found its way to the market, and pointing out the means thus afforded for the propagation of disease of various kinds, Dr. Richardson maintained that under a properly constituted vegetable diet strength of mind and of body was as fully secured as under an animal or under a mixed animal and vegetable system. In concluding he said he had been glad to give that lecture in Manchester in support of a change in our national life and history that would render the next century one bringing forth on these little islands a new evolution, a new race, leaving behind it its grosser parts, and ascending nearer and nearer towards the eternal light of nature and its omnipotent Lord. (Applause.)

The Bishop of Salford (Dr. Herbert Vaughan) proposed the following resolution: "That the best thanks of this meeting be given to the Vegetarian Society for inviting Dr. Richardson to Manchester, and organising this meeting for a lecture on 'Foods of Man.'" He felt that they were really very deeply indebted to the Vegetarian Society. For several years he had felt this, but that night he felt it perhaps more

strongly than ever before. He had long felt that the happiness of the people depends very much upon the food which they eat. He had charge rather of souls than of bodies, as Dr. Richardson takes special charge of bodies rather than of souls, but "*Mens sano in corpore sano.*" We want to have a whole and a healthy soul in a healthy body; and in nature here below there is no closer connection to be found than that between the body and the soul. The great mass of our people have not that education as to matters connected even with their immediate happiness which we could wish them to have; neither have the higher classes of this country much more knowledge on the subject of what is healthy for their bodies than have the mass of the people. The ignorance, perhaps, is quite as great in the higher as in the lower classes. We desire to benefit them all, and if we can bring forward a greater knowledge of what is good for the body to feed upon we are conveying information which will be a distinct benefit to all classes of the population. So strong is the feeling of the people on the question of diet, that the Education Department of the Government has taken up the matter, and grants are given in aid of cooking classes. This is some encouragement, and though the grants do not cover the cost, it is intended to go on with these cooking lessons. He hoped the Vegetarian Society would press its views upon the Education Department, so that the whole question of cooking—not mutton chops and beefsteaks, but the various vegetables—may be taken into consideration in our elementary schools Unless a strong inducement is given, he feared very much that these elementary schools will teach the children rather how to cook meat than how to prepare vegetable diet, consequently he believed there was a very important work immediately before the Vegetarian Society, if it would only take it up, and he felt sure that it would. (Applause.)

The Rev. Canon KELLY said there were two grounds for supporting this motion of thanks to the Vegetarian Society. The first was because the invitations had been extended to a far larger area than the members of that society, so that those in the outer circle had an opportunity of listening to both sides of this question, which affected the present and future welfare of the country. His second reason for thanking the Vegetarian Society was for having given them the opportunity of listening to one whose name was a household word, and who had given to the subject many years of personal investigation. The lecture was characterised by a calm and judicial spirit, and possessed deep interest for those who cared for the moral and physical well-being of the people of this country, and wished well to the crusade against indulgence of the palate and the senses. (Applause.)

The MAYOR OF MANCHESTER, in putting the resolution, said that he was responsible for its having been submitted to the meeting. Though a charge had been made for admission, the receipts would not nearly cover the expenses, and he therefore felt that the Vegetarian Society deserved thanks for their enterprise and philanthropy. The Mayor expressed a wish that Dr. Richardson could visit some of the cooking schools and give the young cooks the benefit of his experience in preparing their penny and halfpenny dinners. (Applause.)

The resolution was heartily adopted.

The Rev. JAS. CLARK expressed the hearty thanks of the meeting to the Mayor for presiding, and to the friends who had rendered the musical services.

No. 7.

THE CEREALS AND OTHER PLANTS SUPPLYING FARINACEOUS FOODS.

By Mr. Leo H. Grindon.

On Tuesday evening, January 31st, Mr. Leo H. Grindon the author of "Fruits and Fruit Trees," &c., delivered a lecture upon "T e Cereals and other Plants supplying Farinaceous Foods." The Rev James Clark presided, and there was good attendance. Previous t the lecture a Vegetarian dinner was given to a number of invited guests.

After a few introductory remarks from the Chairman, Mr. Grindon delivered his lecture.

Mr. Grindon said: We may ask when did the use of the corn-producing plants begin, and where? Now, like other great and grand problems, the first knowledge of the corn-producing grasses is quite lost beyond the most distant horizon of history. The corn-producing plants belong to the same great botanical family, which includes all kinds of grasses. Hence it is that they are frequently called the corn-grasses. Every kind of grass produces some kind of blossom and some kind of seed. There is the glorious bloom of the pampas grass from the Brazils, one of the handsomest of its race; and there is also the grass of our meadows, the sweet smooth green, furnishing pasture for cattle and sheep. Intermediately we have a small, but invaluable little company of grasses, which produce seeds charged with nutriment adapted for man, and to that little company we give the name of the corn-grasses, or corn-plants. Altogether there are about 3,000 different kinds of grasses. Out of the 3,000 we have only about 20 that give grain fit for human food; and the number of those that supply food for cattle will again be very small—how small you will understand by hearing that in England we have about 120 wild grasses. Out of this number 20 are found in the meadows, the other 100 being found in a wild state along the hedgerows and in other places. Out of the 100,000 plants known to colonists that are of value to man about 10,000 are useful as supplying food or material for beverage, or material for buildings, or medicines, or for manufacturing.

Coming to the English grasses, of 110 or 120 not more than 20 are available for the food of cattle and sheep, and not a single one of them supplying anything of the nature of grain. To what place do these 20 corn-grasses belong? With one exception, they belong to that wonderful portion of the earth's surface which we distinguish broadly as South-Western Asia. In this part of the world it pleased the God Almighty to let be developed the particular grasses which we now call the corn-grasses. Some of them may belong to the warmer parts of India. The only grain that is not a native of the Old World is that commonly called Indian corn, or by its Mexican name of maize. This belongs exclusively to the central parts of the American continent. In very early times these corn plants received the very elegant name of the "Cerealia," or, in plain English, the "cereals."

In considering these plants, we naturally wish to know how to tell these 20 from all other plants, and how to determine which are the most important to ourselves. Out of these 20 we in England value only seven. Some of the others may possibly be as nutritious, but there are seven that stand pre-eminently before us, and to learn their distinctive appearance is a matter of great ease. When corn is produced in the ear, it is botanically said to be a "spike." Out of the seven there are three which grow in "spikes"—wheat, rye, and barley. There are also three in which the cluster gives one the idea of a miniature tree, with many little branches, subdivided into twigs. This class we call the *panicle*, of which the oat, rice, and millet form the three. Then, in the last place, we have the wonderful grain which we can distinguish as maize, or Indian corn, which is altogether different from the other six, and is totally different from all other grasses, standing absolutely unique in its mode of growth and in its general nature. The other thirteen, or thereabouts, are chiefly different kinds of millet, and are used chiefly in the East Indies, although one or two of them are cultivated at the Cape of Good Hope. There is a very remarkable grass grown in India, which goes by the very sentimental or affecting name of "Job's Tears." It is but little that they are used for food, and then when in a very young state, for the grains rapidly harden. Anyone may grow these curious and interesting plants who has got a good greenhouse or hothouse. The interest of the greenhouse, apart from anything else, is augmented twenty-fold when strange plants are added. I introduce the "Job's Tear" to your notice, not that we know of its use in this country, but as illustrative of what strange plants furnish food in India and other places.

We ask, in the next place, of the various qualities of these grains

which are to be considered the most precious? Without any question, wheat stands quite at the head. Brown bread is far and away more nourishing and better for us than white. Brown bread—or wholemeal bread—contains all the elements that are needed for the sustenance of the human frame. After wheat will come oats and rye. The preciousness of good oatmeal is known to most of us. Rye bread is again invaluable, with the added recommendation that it will grow further north than any other grain. If it should be the good fortune of any of those present to visit Scandinavia, they would find rye bread the staple food, that part of Europe being too far north for the successful cultivation of wheat. After wheat, oats, and rye, must come barley; and, in the last place, rice and millet. Rice is the least nutritious of all the grains commonly used in England. We do not find in it those valuable elements that go to the formation of flesh and blood in the same high proportion that we find in wheat. Hence wheat, in all civilised countries, has taken the first place in the estimation of the people, so that we find wheat grown in more parts of the world than any other grain. Wheat has been carried by man to almost every place in which he has established a footing. Although more human beings subsist upon rice, including all the natives and inhabitants of the great Chinese and Malayan empires, still wheat is grown in more distinctly different parts of the world. Indian corn stands rather low down on the list, hence its adaptedness in the time of potato scarcity as a substitute for that vegetable, having qualities of a similar nature to the potato. Of the millet I need not say much as to its qualities, because in this country we use it only for puddings. Its sweetness is remarkable, and it makes exceedingly nice little cakes and biscuits. In countries such as Italy and South-Western Asia it may be used for making bread, and it is in that part of the world where it is chiefly raised. The millet will grow with the greatest ease, and it is a delightful variety for the ornamentation of the flower garden. There is an odd fact about millet; when it is hot it is a very gravelly substance, but when more cool it goes as soft and as sweet as any butter. I do not know that that peculiarity exists in any other grain.

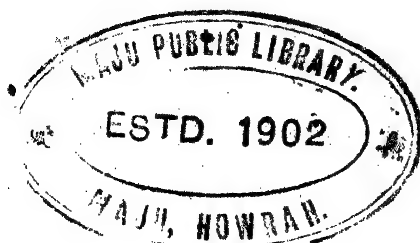
It now becomes interesting to know what substitutes there may be for these. I am not going at length into the history of all the different substitutes, but we must not forget that the few cereals I have mentioned are simply the aristocracy of that class of plants yielding human food. There are many other plants that supply starchy or carbonaceous foods that are of great value, and it would be well to use them more extensively. In the first place, I would refer to buck-wheat. Do not

think because there is wheat in the name, that buck-wheat is one of the grasses. It is a plant really related to our own wild English polygonums. It will not make bread, and is chiefly used in the making of buck-wheat cakes. It will not compare with the cereals, but, no doubt, it is of great value. After the buck-wheat, which is not a grass, I will take the plant which supplies us with tapioca, an ingredient which is the basis of some of our most esteemed puddings. The history of the tapioca plant is exceedingly curious. The plant is known in its native countries as the cassava plant. The cassava plant is accounted one of the most poisonous of plants, and the poison is driven from it by means of fire, leaving a pure wholesome meal. After the meal is obtained, it is placed in water, the heavier parts going to the bottom, while the finer portion of the meal, presenting a milky appearance, remains suspended in the water. After a time, however, this finer sediment settles down, and forms what we know of as tapioca. Thus, you will see, tapioca and cassava are the same things.

Arrowroot is produced by a number of plants, but cannot be recommended as an article of diet. In the last place comes sago, which is derived from a plant altogether different from anything that I have before spoken of—the palm tree. In the interior of the stem of the palm is a great quantity of pith, just as you have pith in the hard cabbage stem. In order to obtain it these trees must be cut down; the pith is then extracted, properly washed and manipulated, and at last we get the pretty little grains which we buy in the shops under the name of pearl sago.

During the course of his lecture, Mr. Grindon exhibited a number of the plants he referred to, and after the lecture, described some of their properties more minutely.

After a few remarks from the Chairman, Mr. Duncan, and the Lecturer, a vote of thanks, moved by Mr. W. Harrison, and seconded by Mr. Stanley, was accorded to Mr. Grindon for his valuable lecture. A similar compliment to the Chairman, moved by Mr. Registrar Smith, and seconded by Mr. R. Gibbon, brought the proceedings to a close.



No. 8.

THE MISSION AND CLAIMS OF VEGETARIANISM.

By Mr. William Harrison.

THE lecture on Tuesday, 14th February, was delivered by Mr. William Harrison, his subject being, "The Mission and Claims of Vegetarianism." Prior to the lecture, a Vegetarian dinner was given to a number of invited guests. The chair was taken by Mr. Henry Rickards, and a good audience assembled, the lecture being followed by considerable discussion.

After some introductory remarks from the Chairman,

Mr. HARRISON said: Vegetarianism, as set forth by the Vegetarian Society, excludes flesh, fish, and fowl as food from the daily dietary, its disciples mostly feeding from the first source and relying upon the pure bosom of Nature, who, from her superabundant stores, yields every variety of quality and quantity to meet all the varied tastes and necessities of mankind. On the third day of creation God created the herb yielding seed and fruit-bearing tree. God, the loving Father, in His omniscient, unerring wisdom, appointed the herb and the fruit of the tree for man; also to every beast of the earth, to every fowl of the air, and to everything that creepeth upon the earth, where there is life, "I have given every green herb for meat;" and God saw everything that He had made, and behold, it was very good, Genesis c. i., 29, 30, and 31 v. This completed His six days' work. God is love, immutable, without any variableness, or shadow of turning. He is the same yesterday, to-day, and for ever, who is love, righteousness, and peace. His moral and physical laws are expressions of Himself. These laws must therefore be in harmony with Himself. All future is known and complete in the mind of God. Nothing is new to Him; therefore, from His infinite grasp of all the future necessities of man and animal, He gave man kind the best conditions of life and peace. In reading the Old Testament scripture upon this and many other subjects it appears to me like walking in a dark night, stumbling and mistaking objects, and often wandering the wrong way. The dense, dark, overhanging clouds, obscure the light of the sun, precluding the possibility of seeing real objects accurately.

Just so in surveying the harmony of God's loving-kindness through the clouds and darkness of men's abominations as recorded in some portions of the Old Testament scriptures. Sometimes I cannot *trace*

this harmony; therefore I *trust* that the clear shining light is behind and above this man made darkness. But I see the everlasting Father more clearly in the transparent lives of some of his children; I see God in perfect harmony in the face and life of Jesus, shining out in good will, in resplendent brightness, and refulgent glory. While man continued to sit upon the righteous throne of creation, love, peace, and harmony reigned supreme. No hurt, no killing, no war in this grand old time of primæval glory. Man deviated from the path of divine law and command, and so God said, "his days shall be an hundred and twenty years," Genesis c. vi., v. 3. Then incongruities, moral gloom, and spiritual darkness wrapt mankind in confusion indescribable; curious and selfish inventions of the depraved life followed—polygamy, slavery, drunkenness, *and* the eating of *animals*.

I will not here attempt to penetrate into the dark mysterious enigma of the errors of our forefathers. Selfish man catches at shadows, and blindly quotes scripture in support of slavery, polygamy, strong drink, war, and flesh as food; when every moving thing that liveth was permitted, as the green herb for meat immediately follows, "but flesh with the life thereof, which is the blood thereof, shall ye not eat."

A Vegetarian lady put into my hands, on Sunday night, the following suggestion for our future consideration, as the most probable way of reading this portion of scripture.

"When Noah came out of the ark he built an altar, and took of the beasts and offered up burnt offerings to the Lord, but when the Lord smelled the sweet savour, he saw the perverseness of man's nature, and He said, "The imagination of man's heart is evil from his youth." He pitied Noah's ignorance, and said, "I will not curse the ground any more for man's sake." Then, in speaking to Noah, God tells him that man shall rule over all creation (Genesis ix., 2, 3, 4, 5); and in the third verse we read, "Every moving thing that liveth shall be for food, as the green herb have I given you all." Now I presume this is an error in the translation; for see what follows: "But flesh with the life thereof, which is the blood thereof, shall ye not eat, and surely your blood, the blood of your lives will I require, at the hands of every beast will I require it." Now I should read this verse thus: "Not every thing that liveth, but everything that flourisheth as the green herb have I given you for food." However this may be, the repeated prohibitions of blood are very noticeable. In Leviticus, c. iii., 17 v.: "It shall be a perpetual statute throughout all generations, that ye eat neither fat nor blood." Levit. c. vii., 26 v.: "Moreover, ye shall eat no manner of blood, whether it be fowl, or

beast, in any of your dwellings." Read Levit. c. xvii., from 10 to 15 v., Deut. c. xii., 16 to 23 v., also c. xv., 23 v., also 1 Samuel c. xiv., 32 to 33 v., Ezek. c. xxxiii., 25 and 26 v.

In most places of holy writ where flesh-eating is named it is connected with lust, or something which God abhors. Isaiah c. xxii., 12, 13, and 14 v., "When the Lord God called to mourning and weeping, behold, joy and gladness, slaying oxen and killing sheep, eating flesh and drinking wine." And what follows? "Surely, this iniquity shall not be purged from you till you die, saith the Lord of Hosts."—Exodus c. xx., 13 v. Isaiah c. lxv., 4 v. Prov. c. xxiii., 19 and 20 v.: "Hear thou my son, and be wise, and guide thine heart in the way. Be not among winebibbers and riotous eaters of flesh."

Flesh-eaters may say these are obsolete rites. But the Apostle James stands forward, making the same declaration. Acts xv., 20 and 29 v. How is it possible to eat flesh without eating the blood? Bloodvessels permeate the whole of the flesh, which gives it the redness. Who can read the story of the quails, after which the children of Israel lusted, without seeing the sinfulness of the people. We read: "For while the flesh was yet in their teeth—ere it was chewed—the wrath of God was against the people, and smote them with a very great plague." In alluding to this, David said: "He granted them their request, but sent leanness into their souls." Many young men go to scripture, and read in Ecclesiastes: "Rejoice, O young man, in thy youth, and let thy heart cheer thee in the days of thy youth, and walk in the ways of thine heart and the sight of thine eyes," and straightway run in the path of sin, taking their fill of degrading pleasure under a feeling that scripture sanctions it, and in the bitterness of their souls find out the judgments of God severely punishing them. They read the scriptures with worldly and selfish blindness, and I fear many of our flesh-eaters read the Biblical aspect of this subject through mutton chops and beef steaks, custom, and convenience blinding their perception of the true light. We have for our example and correction the living deeds of Royal Daniel (the Vegetarian), who was admitted to converse with angels, nay, with the Lord of angels, and was by Him declared a man greatly beloved. Josephus speaks of this royal youth, as one of the greatest of the prophets, whose writings were in daily use among the Jews, and as one who wrote under the dictates of an infallible Spirit, who was admitted into immediate converse with God. Our blessed Lord cited his words, and expressly called him *the prophet*. King Nebuchadnezzar gave the prince of the eunuchs instructions to find children in whom there was no blemish, well favoured, skilful in all wisdom, cunning in knowledge, and under-

standing science, such as had learning and ability to stand in the King's palace. The prince of the eunuchs made the selection of Daniel and his three companions. The prince of the eunuchs had instructions to feed Daniel and his three friends with the King's meat and wine, but Daniel and his companions refused both the meat and wine, and instead asked for pulse and water. After ten days' trial a comparison was made with Daniel and his companions between others who had fed upon meat and wine, but Daniel and his companions were pronounced fairer and fuller in flesh than those who ate of the King's meat. These four were Vegetarian, living epistles to be read and known of all generations; this is the CLEAR SHINING LIGHT, and manifestation of the good old way of diet, which *God had appointed from the beginning.* Some of our Vegetarian friends have claimed John the Baptist, Matthew, Peter, and James as with us.

"Dare to be a Daniel;
Dare to stand alone;
Dare to have a purpose true,
And dare to make it known."

Eating of flesh, I believe, has no Divine sanction. I do not deny its permission,—we are even permitted to sin, "For the letter killeth; but the spirit giveth life." 2nd. Cor. c. iii., 6 v.

In the Merchant of Venice, the Jew was permitted to have his pound of flesh, but only on condition that not one drop of blood be shed, and such permission was given to eat flesh, but without the blood, which was a sarcastic rebuke. Has not God stamped man with His divine and eternal design, as a fruit, vegetable, and grain eater, which distinguishing features from the carnivora are also found in all nonflesh-feeding animals—*such as* the smoothness of the tongue, grinding teeth with the two actions of the jaw, drinking by drawing water into the mouth, perspiring through the skin. The carnivora or flesh-eating animals, have rough surface tongues, pointed, space-divided, jagged teeth, with only one chopping motion of the jaw, drink by lapping with the tongue, and do not perspire through the skin, all of which clearly show to which class of feeders man belongs, as he possesses none of the latter. We are told that man has the canine tooth; we are also informed that the ape has the same tooth more developed, but he is no flesh-eater. I would say, from a mechanical point, that some kinds of fruits, roots and nuts, are easier broken up by the projecting teeth, which are called canine. Many will have read the story related by one of our missionaries in or near New Zealand. The queen of the island was sick; and when asked by her kind attendants if she could eat anything, in the simplicity of her heart answered, "I think I could suck the tender bones of a white

baby's fingers." Mothers, what think you of this? She had been in the habit of tasting this (what the queen called) delicious morsel until its relish, no doubt, to her was like a sweet chicken to the more refined cannibal in a Christian land. About forty-six years ago there died in the sailor's hospital on Staten Island, near New York, a cannibal or man-eater of enormous size and disgusting ferocity of appearance, who was captured by a sea captain in one of the South Sea Islands. He was put in chains, sickened on the voyage, and before his death he said that he died for the want of human flesh, and nothing could satisfy his longing! Do not be squeamish; this is but the natural result of flesh-eating. (Hear, hear.)

In this Christian England babies are taught to suck flesh, and to eat it as soon as their teeth come, and it is placed before them through life, until the appetite has grown strong for the flesh. Many feed upon flesh three and four times a day, and think it good feeding; hence the immense difficulty of influencing the people to consider our question, and when convinced that flesh-eating is wrong, the difficulty of being weaned from it, many turn back because it is difficult and inconvenient to do the right. Many have fought against the flesh-craving appetite, and finally conquered, and are better and happier to-day for it. (Hear, hear.) When I was convinced and began in earnest, the flesh-crave was in me for a long time. I experienced a feeling of hunger for twelve months, but I have been perfectly satisfied for many years. This is the experience of many. The drink crave for intoxicating drink, tobacco, snuff, and opium, takes a strong and deep hold of man's nature, and a strong resolution is needed to break the iron chain of all these habits that binds him, but the freedom from these evil tyrants is worth the struggle, it is freedom from a thousand ills that flesh is made heir to, freedom to start on the journey of health, and arrest the further development of disease from flesh-feeding already oppressing the body and soul, greater freedom to think more clearly; to feel more purely; to act more promptly and freely; to sing more sweetly; to smile more charmingly; to make joy and gladness all around; freedom from selfishness and greed, freedom from long and toilsome slavery, freedom from the withering blight of poverty, freedom from the lower strata of moral vice, freedom from the crushing weight of taxation, freedom from the monopoly of the sacred soil, freedom from the thick abominations that spread reeking to the skies, freedom to realise the grand restoration as it was in the beginning, when the lion shall again lie down with the lamb and eat like the ox, as at the dawn of creation, freedom to develop Heaven in the soul, greater freedom to increase our eternal weight

of glory in the sinless clime of joyous peace. Vegetarianism promises all these blessings. Aye, and a thousand more will flow from her generous lap. The Vegetarian Society is one of the messengers from God of peace and plenty. Our good and noble missionary, Richard Coad, told me the other day that Vegetarianism was the salvation of his body, and without it he could not perform his present work. Who works and travels about more than Mr. Coad? Who can do anything without the body; it is the temple of the living God, the only possible medium of all that is good and enjoyable in this life. It is the home, the instrument, and the eternal companion of the soul. Then, in importance, it supersedes every other earthly possession. We ought therefore to understand it more, and nourish it with proper first-source food, which foods are in nutritive value far beyond flesh-foods. (Applause.) It is astonishing the extensive and profound ignorance that prevails about the deficient nourishment of flesh. The average amount of nutriment in flesh is only 25 per cent., costing from 6d. per lb. The nutritive value of lentils, wheat, oats, haricot beans, peas, and Indian corn, is from 75 to 80 per cent., costing 2d. to 2½d. per lb.

Let us see, then, what chemistry has to say on the subject. We find in "The Perfect Way in Diet," by Dr. Kingsford, the following: "By means of the following table the composition of the various alimentary substances most in use, of both vegetable and animal origin, and their comparative nutritive values, may be readily perceived and understood." The analyses given are those of Fresenius, Letheby, Pavy, Church, Wolff, Knop, and Payen. (See tables on pages 66 and 67).

It is admitted by Dr. Richardson, Dr. Norman Kerr, Dr. Allinson, Dr. Kingsford, Dr. Beaumont, Dr. F. R. Lees, Dr. Lambe, and a host of others, that flesh food is stimulating, having a detrimental effect upon the nerves. This tends to shorten life and to lead to apoplexy, and a host of other diseases. They also admit it is safer and better to feed from a suitable, well-chosen variety, direct from the plant world, which contains all the physical economy required for the performance of either manual or mental labour. The late Sir William Fairbairn, of this city, after his visit to Constantinople, reported to the Poor-Law Commissioners, in 1841, as follows: "The boatmen and water-carriers of Constantinople are decidedly, in my opinion, the finest men in Europe as regards their physical development. They are all water drinkers; their food consists chiefly of bread, cherries, figs, dates, mulberries, now and then a cucumber, with other fruits which are abundant there. I never saw them eat any other kind of food, but heard that occasionally they would eat a little of goat's flesh. We had three fine, big, noble-

looking men at the annual meeting of the Vegetarian Society, last year, from the Thames Ironworks. These men have to wield big, heavy hammers, and each one said that he could perform his work better upon the Vegetarian diet than a flesh diet. This is the testimony of all who give it a fair trial. (Hear, hear.) Dr. Richardson says that if there is any failure it is because too much of the vegetable is eaten, and thus an insufficient amount of nutriment is obtained; or, on the other hand, too much of the pea, lentils, beans, &c., is taken, hence too much nutriment of one element is taken for the body. A suitable proportion and quantity of each should be taken, also a good supply of fruit: then success is certain. The ape, for his size, is the strongest animal in the world; he feeds upon fruits, nuts,

	Nitrogenous Matter.	Hydro-Carbonate Matter.	Saline Matter.	Water.
Lean beef	19·3	3·6	5·1	72·0
Fat beef	14·8	29·8	4·4	51·0
Lean mutton	18·3	4·9	4·8	72·0
Fat mutton	12·4	31·1	3·5	53·0
Veal	16·5	15·8	4·7	63·0
Fat pork	9·8	48·9	2·3	39·0
Dried ham	8·8	73·3	2·9	15·0
Tripe	13·2	16·4	2·4	68·0
White fish	18·1	2·9	1·0	78·0
Red fish (salmon)	16·1	5·5	1·4	77·0
Oysters	14·010	1·515	2·695	80·385
Mussels	11·72	2·42	2·73	75·74
White of egg	20·4	...	1·6	78·0
Yolk of egg	16·0	30·7	1·3	52·0
Cow's milk (Lactine 5·2)	4·1	3·9	0·8	86·0
Cream („ 2·8)	2·7	26·7	1·8	66·0
Butter	...	83·0	2·0	15·0
Gruyère cheese	31·5	24·0	3·0	40·0
Roquefort „	26·52	30·14	5·07	34·55
Dutch „	29·43	27·54	..	36·10
Chester „	25·99	26·34	4·16	35·92
Parmesan „	44·08	15·95	5·72	27·56
Cheddar „	28·4	31·1	4·5	36·0

&c. Dr. Kingsford says that, in dissection, the ape is exactly like man, and if the two were laid on the dissecting-table, with their skins off, you could not tell the one from the other.

The *Westminster Review* observed of the Vegetarian system: "Few have been its disciples, but amongst them we find glorious *world-impressing, world-improving* men. The laurels of its heroes are not crimsoned with blood. The Amaranthine wreaths which encircle their brows sparkle with the dews of mercy, and are laved in the waters of life; they are green with unfading, and blossom with immortality. The lust of ambition and the love of power, the rage of conquest and the impulses of ferocity are never fostered by the feasts of nature. Towering amidst a host of

famous men—prophets, priests, philosophers, sages, poets, authors, athletes, philanthropists, apostles, there are: Daniel and John; Pythagoras and Epaminondas; Epicurus and Porphyry; Siddharta, and Cyrus; Milton and Shelley; Swedenborg, Howard, Ferguson, Franklin, Wesley, and Williams." I may also mention that Sir

In 100 Parts.

	Carbo-hydrates.	Nitro-genous Matter.	Hydro-carbonate Matter.	Saline Matter.	Water.
Beans	55·86	30·8	2·0	3·65	8·40
White haricots	55·7	25·5	2·8	3·2	9·9
Dried peas	58·7	23·8	2·1	2·1	8·3
Lentils	56·0	25·2	2·6	2·3	11·5
Potatoes	21·9	2·50	0·11	1·26	74·0
Black truffles	16·0	8·775	0·560	2·070	72·0
Mushrooms	3·0	4·680	0·396	0·458	91·010
Carrots	14·5	1·3	0·2	1·0	83·0
Sea-kale	2·8	2·4	...	(?) 3·0	93·3
Turnips	7·2	1·1	...	0·6	91·0
Cabbage	5·8	2·0	0·5	0·7	91·0
Garden beet	13·5	0·4	...	(?) 1·0	82·2
Tomato	6··0	1·4	...	(?) 0·8	89·8
Sweet potato	26·25	1·50	0·30	2·60	67·50
Watercress	3·2	1·7	...	(?) 0·7	03·1
Arrowroot	82·0	...	...	...	18·0
Dry Southern wheat	67·112	22·75	2·61	3·02	...
Dry common wheat	77·05	15·25	1·95	2·75	...
Oatmeat	63·8	12·6	5·6	3·0	15·0
Barleymeal	74·3	6·3	2·4	2·0	15·0
Ryemeal	73·2	8·0	2·0	1·8	15·0
Dry maize	71·55	12·50	8·80	1·25	...
Dry rice	89·65	7·55	0·80	0·90	...
Buckwheat	64·90	13·10	3·0	2·50	13·0
Quinoameal	56·80	20·0	5·0	(?) 1·0	15·0
Dhoorameal	74·0	9·0	2·6	2·3	...
Dried figs	65·9	6·1	0·9	2·3	17·5
Dates	65·3	6·6	0·2	1·6	20·8
Bananas	(?)19·0	4·820	0·632	0·791	73·900
Walnuts (peeled)	8·9	12·5	31·6	(?) 1·7	44·5
Filberts	11·1	8·4	28·5	(?) 1·5	48·0
Ground nuts (peeled)	11·7	24·5	50·0	(?) 1·8	7·5
Cocoanut	8·1	5·5	35·9	(?) 1·0	46·6
Fresh chestnuts (peeled)	42·7	3·0	2·5	(?) 1·8	49·2
Locust bean	67·9	7·1	1·1	(?) 2·9	14·6
Cocoa nibs / Chocolate	11·10	21·20	50·0	3·0	12·0

Isaac Newton thought out and wrote his famous *Principia* under this diet; and Milo, the Samson of the Greeks, was an absolute abstainer.

In the Word of God we are enjoined "to righteousness, that our days may be prolonged on earth." "The fear of the Lord prolongeth days." "What man is he that desireth, and loveth many days, that he may see

good. Depart from evil, and do good. Seek peace and pursue it. He shall call upon me, and I will honour him; with long life will I satisfy him."

Science says: "The human body as a machine is perfect; it contains within itself no marks by which we can possibly predict its decay; it is apparently intended to go on for ever."—*Anatomical Lectures, by Dr. Munro, of the University of Edinburgh.*

"Such a machine as the human frame, unless accidentally depraved, or injured by some external cause, would seem formed for perpetuity." —*Medical Conspectus, by Dr. Gregory.*

"At some future day, there can be little doubt that the value and duration of life will be extended greatly beyond what it is at present, greatly beyond, perhaps, what we at present can imagine."—*Dr. Thompson's Medical Dictionary.*

We naturally shrink from death, and cling to life. By our diet we offer you the very means of not only prolonging it, but enjoying it with a healthy and sound body. By the flesh diet how much have we lost of science, art, philosophy, poetry, music, godliness, architecture, and agriculture, by forcing bright and glorious spirits out of their earthly tenements long before natural decay would have removed them? Oh! that they had only listened to the angel voice of Vegetarianism, and saved us from being robbed of the higher joys and fuller development of all that is great, good, and grand in life, for which the world pants. But, alas! habit, custom, ignorance—sensual and selfish tyrants—hurl us back into bitter disappointment, pain, sickness, poverty, and premature death. Let these words be written upon every heart, "We are our brother's keeper." Then shall the intolerable sin-burdens of society be removed. We would teach you to feed upon the golden grain, ripe apples, pears, delicious clustering grapes, and the rich abundance of earth's stores. We would send men who are only doing women's work back to the precious soil, to replenish, till, and cultivate it. Young men in counting houses, post offices, banks, press offices, go back to the fields, where the sun of health and strength sheds his glorious rays with all the inspiring, moralising, and invigorating conditions of an agricultural life. We want hard hands, more bronzed cheeks, more muscular arms.

Then we may hope to have again from the fields an army of the good and great, from whence in the past have come the noble worthies of reform, literature, eloquence, law, and benevolence, such as Daniel Webster, Martin Luther, Jefferson, Burns, Garfield, Lincoln, Henry Clay, and Washington, and before this world is right, the overflowing population of our crowded cities will have to take to the fields. Instead of ten merchants in rivalry as to who shall sell one apple, we want at least eight of

them to go out and grow apples. Instead of ten merchants desiring to sell that one bushel of wheat, we want at least eight of them to go into the fields and raise wheat.

We are cursing ourselves by not cultivating the soil from whence earthly blessings flow, and which would produce food enough and to spare. "The earth is the Lord's, and the fulness thereof;" but selfish man defies God and prevents the earth from bringing forth her increase to supply his children with bread. What think you of two men, the Duke of Sutherland and Lord Middleton, possessing the thirty-sixth portion of the soil of Great Britain and Ireland? The Duke of Sutherland owns 1,208,666 acres; Lord Middleton owns 1,005,741 acres. (*Modern Society*, February 4, 1888.) What think you of men buying up the land and refusing its cultivation and natural production of food, keeping it merely for game and sport? Vengeance crieth aloud, and the omnipotent people will overthrow these usurpers of the land.

Is this, O, Heaven! true equity and right—
Can such unfeeling souls possess the land?
Is this the liberty for which we fight?
Go! sheathe your daggers—nerveless be each hand.
Thou monster, man; I blush to call thee brother,
The Reason thou dost boast of damn's thee more;
Pride, wealth, would even make thee scorn thy mother,
And stain thy fingers in a father's gore.
It cannot last for ever; Vengeance burns
Around the tyrant, and his power shall fall
When Justice to her ancient seat returns,
And Truth's immortal light is shed on all.
Then shall a spotless banner be unfurl'd,
And Justice, Love, and Truth shall govern all the world.

When these mighty wrongs are righted then shall be removed those horrible city hell scenes which met the eye of the Rev. Dr. Macfadyen when he descended at midnight into the Manchester lower regions of heathen darkness—"where he saw men, women, and children pig together in lodging-houses, and haunts where men and women were coining money by pandering to vice." Dr. Macfadyen says "that destitution was at the root of the matter. The change in the condition of agriculture had sent into the city vast masses of the country population, and this made matters worse. He took shame to himself that he had for 25 years presided over that congregation without even knowing the facts before."

Very much of this destitution can be prevented by Government and the rich encouraging orchards of fruit trees, and instead of monopolising our own land by growing flesh instead of the fruits of the earth; instead of sending £140,000,000 to other countries yearly for food and luxuries beyond our export, by keeping most of this at home,

for home cultivation. With a Vegetarian fare, we could feed 120,000,000 people on these islands, and so there would be an abundance of work for all—food would then be plentiful and cheap. We fed at No. 5, Fountain Street, 125 boys from Mr. Jackson's Industrial School, Ardwick. We supplied them with lentil soup, potato pie, and jam roll, at a cost of 1½d. per head. The food was sufficient and enjoyed. (Applause.)

We supply books and pamphlets upon every phase of the question, so that you may "prove all things, and hold fast that which is good." We give you instructions how to cook. We encourage the opening of Vegetarian restaurants. The society opened one at the Healtheries and one at Liverpool with great success. We organise local societies everywhere. We give free lectures in any part of the country. Several lectures have been given in this hall by the Rev. James Clark, Mr. Axon, Mr. Bailey, Miss Lindsay, Professor Mayor, and others. We ask you to buy a dozen volumes of these six lectures; read them carefully, and lend them to others. Each lecture has been preceded by a free educational dinner to doctors of medicine, ministers, scientists, philanthropists, &c. Our principles, we believe, are based upon eternal truth. We preach bread reform, health, thrift, humanitarianism, the elevation of women, patriotism, and beneficence, national purity, and universal peace; therefore, we claim the hearty co-operation of all sects and parties, learned and unlearned, rich and poor. (Applause.)

We claim the rich, because they can help our great work out of their abundance, helping us to open the safety valve of civil war so wide that I hope such may never happen. We claim the learned, because they can instruct the ignorant in this, one of the all-important questions of the day, the destiny of whose march must come to the front rank. We claim the philanthropist, because he can find out the wretched sufferers, and with an overflowing heart of love can administer personally the blessings of cheap nutritious food.

We claim the good of all classes, because they can speak a good word and go from door to door with our silent tracts—as the "still, small voice of God."

We claim gentle, loving woman, because the infant of future generations nestles in her lap, whose moulding potent impress is for weal or woe—because of her deepest sympathies with suffering; she can brave every difficulty, planting her faithful foot nearest the despised Nazarene,—who was the life and light of men. It was Florence Nightingale's ears that caught the bleeding soldiers' cry of Scutari. And shall not the suffering in our slums and back alleys have the beneficent sunshine of woman teaching how to cook cheap and wholesome dishes.

We claim the politician, because he can appeal to the Upper Ten to be wise

in time, before the great human storm overspreads the country, and wrests the land from dire necessity from those who hold it for mere selfish pleasure and gratification. Like the sun which shines in the firmament of heaven upon all mankind, so must the good of the soil accrue in yielding her increase to all mankind without stint or hindrance. We want the politicians, who will plead for our cause like a Plimsoll in the House of Commons; or, the giant majesty of a Wilfrid Lawson, who continues perpetually to cry aloud to stop that drink river which Parliament has let loose upon the people, destroying the domestic circle with its blasting, blighting, withering damnation. We claim the greatest effort, the fullest application of those who are already enlisted under the love banner of Vegetarianism, to diffuse its light to earth's remotest bound. "He that knoweth his Master's will, and doeth it not, shall be beaten with many stripes;" and it is a miserable stingy soul that keepeth and never giveth. With you is committed the great responsibility of becoming wise master builders in the fabrication of this great refuge of health and plenty. See to it that ye become living epistles to be read and known of all men. (Hear, hear.)

We have a double claim upon the Christian, because his life is one of self-denial, because he is not his own—he hath declared himself a follower of Jesus, and has been bought with a price, and that he hath declared that it shall be his meat and drink to do the will of God, and that it shall be his duty to open the prison doors of hunger, and slake the thirst of one of those little ones. Inasmuch as it is thus done, it is done to the Lord of Life; he can open the blessed wings of Vegetarianism on the platform and in the pulpit, and teach how to feed the hungry bodies upon the ear of corn, even on the Sabbath Day, having done all good, to stand on the rock of truth. Then shall all the good be welcomed: "Well done, good and faithful servant," enter into the grander life, where a chaplet of the fairest celestial love flowers, of thousands whom you have blest and fed, shall sparkle for ever in the diadem of your new life, amid the halo of eternal glory. (Applause.)

Our platform is open to all the world. Like the orb of day we shine upon the evil and the good. Like the fertile showers of nature we baptise all who come within the benign radiance of the gospel of Vegetarianism, the chord of whose glorious life harmony was struck on the morning of creation by the King of Kings, the mighty God, the everlasting Father—the rich strains of whose music hath charmed thousands, and shall in its gathering strength of one volunteer and another to its ranks, by-and-by, vibrate from nation to nation until all creation shall catch the song of health, prosperity, and universal peace, whose joyous music shall fill the vault of Heaven. (Applause.)

No. 9.

FOODS AND THEIR COMPARATIVE VALUES.

By Arthur W. Duncan, F.C.S., Member of the Society of Public Analysts.

(Revised for date of publication by the author.)

On Tuesday, February 28, a lecture was given by Mr. A. W. Duncan, F.C.S., on "Foods and Their Comparative Values." Mr. Joseph Crompton, in the absence of Mr. W. H. Newett, occupied the chair, and there was a good attendance. Votes of thanks were cordially accorded to the lecturer and chairman for their services.

The lecturer said: It is obvious that the food we take should contain all the constituents and principles of which the body is composed, and that each principle should exist in a sufficient quantity. The food should also be in such a condition that it can be easily digested and appropriated by the body. Occasionally comparisons are made of a number of foods by merely subtracting the water and calling the rest nutriment, on the assumption that this dry matter is all of equal value. Such comparisons are often misleading, and at best of limited value.

A better method is to separate the constituents into three classes; that part which forms muscle and tissue, that which produces heat or muscular energy, and last, the mineral matter or the bone-producing food. Even to this there are several objections. The so-called flesh-forming food also produces heat and muscular energy. In the second class or heat-producing foods are included two distinct kinds—the starches and sugars, and the fats. As the fats are capable of producing about two and a half times the heat given by the same weight of the starches or sugars, a very unfair comparison may be made between—say the fat of meat and the starch of grains—if they be merely tabulated in food tables as heat foods. The mineral matter again is not solely confined to materials suitable for the production of bone, and, according to the nature of the salts, is of varying value.

It will thus be seen that the comparison of one food with another is not such an easy matter as those unacquainted with chemistry imagine. Of all the elements with which we are acquainted, only 13 appear essential to the animal body. Though traces of a few more exist, they are probably non-essential or accidental. Excepting in the case of

oxygen, which we breathe in the air, these elements are only of use to us as they exist in combination. For example, common salt is a chemical combination of sodium and chlorine, termed chloride of soda, with properties altogether different from either of the uncombined elements. The greater number of these elements are combined so as to form salts, which are classed together and called mineral matter, or ash; these are left behind when the foods which contain them are thoroughly ignited or burnt; it is for this reason they are known as ash. The greater part of our food is capable of being destroyed by heat, and consists of various combinations of the elements oxygen, carbon, hydrogen, and nitrogen; albuminoids also contain a little sulphur, phosphorus, or iron. Although mineral matter exists in the earth, the other division, including substances which are called organic, and which are of a much more complicated structure, can only be produced by living organisms. Vegetable life absorbs mineral matter, and comparatively simple organic or manurial substances from the soil, as well as gases from the atmosphere, and from these elaborates the most complex substances. Animal life is dependent upon vegetable life, as it cannot manufacture organic life of itself. Vegetables are constructive, animals are destructive; in other words, whilst plants build up complex substances, animals reduce them to their simple original condition. We will give some examples: animals can convert starch into sugar, but this is a comparatively simple thing, which the chemist can do in his laboratory. It is the production of a simpler body. The final stage of sugar in the animal body is the resolution into carbonic acid and water. It is then the duty of the vegetable world to reproduce from these either starch, sugar, or some other complex substance. For the large and important class of bodies grouped together as albuminoids, animals are ultimately dependent upon plants. In most instances there is little, if any, difference between the albuminoids manufactured by animals and those manufactured by plants. There are many who advocate the use of the flesh of oxen, sheep, and others of the higher animals, because of its being nearer in appearance and composition to human flesh, and therefore, they think, requiring very little effort in being appropriated to the use of the body. These people, to fully follow out their ideas, should eat flesh in a raw state, instead of coagulating the albumin by the process of cooking. Under no condition is it possible that the muscle of an animal can enter our bodies, and be laid side by side or interspersed with our own muscles. Flesh has to undergo the same digestive process as vegetable foods. The chief part of flesh, consisting of the albuminoids, has, like the albuminoids of vegetables, to be

acted upon by the digestive juice of the stomach, and converted into a perfectly soluble and diffusible condition, called peptone, before it can be absorbed.

We will deal with the constituents of food in the order given in the following Table :—

CLASSIFICATION OF FOOD.

CLASS I.—NUTRIENTS.

DIVISION I.—INCOMBUSTIBLE COMPOUNDS.

		Quantity Found in Plant Food.	Quantity Found in Animal Food.
Group 1.	WATER	*Very large.*	*Very large.*
Group 2.	SALTS—		
	Phosphate of lime	*Abundant.*	*Bones large, flesh small.*
	Chloride of soda	*Small.*	*Abundant.*
	Potash salts, &c.	*Abundant.*	*Small.*

DIVISION II.—COMBUSTIBLE COMPOUNDS.

		Quantity Found in Plant Food.	Quantity Found in Animal Food.
Group 3.	CARBON Compounds—		
	I. CARBO-HYDRATES.—		
	Starch	*Very large.*	*Minute.*
	Sugar, gum, pectose, &c.	*Abundant.*	*In Milk.*
	II. FAT AND OIL.—	*Nuts, large; fruits, generally small.*	*Generally Large.*
Group 4.	NITROGEN Compounds—		
	I. ALBUMINOIDS or Proteids—		
	Albumin, Fibrin, &c.	*Cereals and Nuts large.*	*Very large.*
	Casein, Legumin	*Pulse large.*	*Cheese and Milk, large.*
	II. NON-ALBUMINOIDS—		
	Gelatin, Ossein, &c.	*None.*	*Bone, skin, &c.*

CLASS II.—FOOD ADJUNCTS.

Group 1.	VOLATILE or ESSENTIAL OILS	*In Condiments, Spices, &c.*
Group 2.	VEGETABLE ACIDS (citric, tartaric, &c.)	*In Fruits, &c.*
Group 3.	ALKALOIDS	*In Tea, Coffee, Cocoa, &c.*
Group 4.	ALCOHOL	*In Fermented Liquors.*

The above method of classification is practically that adopted by Professor A. H. Church, M.A.

The words in the second and third columns are merely comparative, the term *small* signifying that the quantity is less than in the other column, where *abundant* is used; it does not necessarily mean that the quantity is deficient for dietetic purposes.

WATER.—Of this the lean of flesh-meat contains about 75 per cent, but

very fat meat may contain only 50 per cent. Apples, pears, peaches, and some other fruits contain from 83 to 86 per cent; some kinds, such as melons, even as much as 90 to 95 per cent. The natural food of infants—human milk—contains 89 per cent of water. Wheat and other grains, haricots, peas, &c., contain in the dried state 14 or 15 per cent, but in the cooking of these a large quantity of water is absorbed. Bread contains about 40 per cent. Even if the cereals or nuts are eaten in the dry state, mastication causes an abundant quantity of saliva to mix with them before they are swallowed. Foods should not be washed down with drinks; if water is needed it is better taken either after or before meals. Hot drinks, in particular, taken with food interfere with mastication and insalivation.

In comparing the cost of various foods, the quantity of water should always be taken into consideration. For example: Haricot beans, at 2½d. per pound, means 3d. paid for a pound of absolutely dry and water free food. Lean beef, containing 28 per cent of solid matter and 72 per cent of water, at 10d. per pound, means paying at the rate of 3s. per pound for the dry food, whilst fat beef containing 30 per cent of fat and 50 per cent only of water, at the same price, means 1s. 8d. for each pound of solid food. Apart from this consideration, the quantity of water in foods is of little consequence, as the dry foods, such as the grains, which contain very little water, absorb a large quantity on cooking, and by the time they are swallowed will be mixed with about the same quantity as fruits, which are very watery. For example: Haricot beans will contain 60 per cent of water after cooking, and oatmeal porridge will contain about 85 per cent, which will be further increased on mixing with the saliva of the mouth.

Hard water, containing lime, is unfitted for cooking green vegetables, and is bad, though less so, for other cooking purposes. A moderately hard water does not appear to act injuriously when drunk; some medical men have even recommended it, but the preference should always be given to a soft water. Some complaints are much benefited by a very soft pure water. Very hard water is unfitted for all domestic purposes. Water is the solvent of all foods, but it undergoes no true digestion in the body, it being little more than a medium or solvent for other things. It, however, is capable of feebly combining with food principles.

SALTS OR MINERAL MATTER.—These exist in all foods, both animal and vegetable. Phosphate of lime forms the firm or resisting matter of bone. Persons who have completed their growth do not need any large quantity of this salt, but growing people and nursing mothers should be supplied with it in abundance. It exists, with other salts, chiefly in the

outer part of the grains. Brown bread and oatmeal are comparatively rich, whilst white bread is deficient in it. Where the food of children consists chiefly of cornflour, arrowroot, rice, and similar things deficient in both phosphate of lime and albuminoids, rickets are very common. Flesh meat is deficient in phosphate of lime. The carnivora not only consume the flesh of their victims but also the smaller bones. Nearly all persons must have noticed how a cat eats a mouse. She does not daintily pick the meat from the bones like a semi-carnivorous human being, but swallows the mouse, bones, skin, and everything. If man had been naturally carnivorous he would doubtless have had a natural taste for bones. Dogs have a natural fondness for crunching even a dry and meat-picked bone. Mothers who feed their children largely on meat ought to break up the bones and get them to swallow them also to supply the deficiency named. Of course we do not recommend the eating of bones any more than we do that of flesh. We only wish to show the absurdity of the whole thing. Human gastric juice has not such a powerful dissolving action on bones as that of the carnivora.

Chloride of soda or common salt exists in all natural and unmanufactured foods; it is essential to life. There is a difference of opinion as to whether it exists in a sufficient quantity in natural foods, or whether it should be artificially added. Wild animals thrive without more than the chloride of soda naturally existing in their food, and it would indeed be strange if man, whose digestive system and food requirements are in all essentials the same, were an exception to the rule.* The relative size of the digestive organs, of course, differs greatly in various animals, including man, but the proportion of saline to other food constituents in the herbivora and man are about the same. Blood is rich in chloride of soda, and chloride of potash (with phosphate of potash), and their presence in it can be detected by the taste. Flesh (which always contains blood) also contains a good proportion. Whilst flesh contains the larger proportion of chloride of soda, vegetable foods, as a rule, contain chiefly potash salts, with a much smaller quantity of soda. By the common method of cooking a number of vegetables and other foods, by boiling them in water, and throwing away this water, a large proportion

* Since writing the above we notice that Sir William Roberts, M.D., F.R.S., in his "Lectures on Dietetics and Dyspepsia," page 64, has some similar remarks. "This habit (*i.e.*, addition of salt) is probably dependent on the elaborate preparation and cooking to which we subject our food. Animals in a state of nature require none." There are some rare exceptions, where wild animals resort to what are called salt licks, but it is probable that the herbage they live on grows on land exceptionally poor in soda and potash. It is sometimes asserted that when salt is added artificially to food it cannot be assimilated, as it is only when it exists in some kind of natural combination with the food that it is of value. We have never seen any proof of this statement attempted, and there is ample evidence of its falsity.

of the saline constituents, besides some albumin, flavouring matter, &c., is dissolved out and rejected. This is particularly the case with potatoes (which contain one per cent of ash, of which half consists of potash, combined chiefly as phosphate of potash.) The difference in flavour between a potato steamed with the skin on and one boiled after peeling is very marked. The insipidity of the latter has led to the general addition to it of salt; but the substitution of chloride of soda for its natural potash salts is anything but an improvement. There are a number of other saline constituents, but only the principal ones can be noticed here.

Combustible Compounds.—The foods in this division are not only dissipated into the air, by red heat, as water is; but they are completely decomposed, or burnt, being resolved into certain gases. They are also called organic compounds. In this division are two groups; first we have—

Carbon Compounds, which do not contain nitrogen. These consist merely of carbon, oxygen, and hydrogen. In this group are two orders, the first being called carbo-hydrates, for the reason that the hydrogen and oxygen exist in the exact proportion in which they exist in water, and that by suitable means they can be decomposed into carbon and water. The name hydrate is derived from the Greek word signifying water.

Carbo-hydrates.—The chief of these are starch and sugar; the others are gums, dextrin, pectose, cellulose, glycogen, &c. There are several varieties of sugar, such as grape, milk, and cane sugar. Starch is comparatively easily converted into sugar, either in the laboratory of the chemist, in the manufactory, or in the digestive organs. Starch is the product of vegetable life alone. The cereals are very rich in it, the chief ones containing from 60 to 75 per cent. The pulses (peas and beans) contain about 50 per cent. The potato contains about 20 per cent, or, leaving the water out of consideration, about 80 per cent of the dry matter consists of starch. Vegetable foods contain varying and generally small quantities of sugar, dextrin, and similar substances. Sugar is abundant in ripe fruits. Dried fruits, such as figs, dates, and raisins, contain quite half their weight of sugar. A considerable proportion of the dry matter consists of sugar in the following vegetables: Artichokes, beetroots, carrots, parsnips, and tomatoes. In animals, a substance called glycogen, which is closely related to sugar, exists in the liver, and in small quantity in the muscles. The quantity consumed by flesh-eaters is much too small to have any significant food value. Cow's milk, containing 12 per cent or

more of solid matter, has nearly 5 per cent of milk sugar, and human milk 6 to 6½ per cent.

OILS and FATS differ from the carbo-hydrates, not only in the very different process of digestion they undergo, but in containing a very much smaller proportion of oxygen; for this reason they produce—weight for weight—a very much greater amount of heat and muscular energy when consumed in the body. This heat is about two and three-tenths of that produced from an equal weight of starch or sugar. The chief constituents of fats are stearin, palmitin, and olein. The first two are solid at the ordinary temperatures, and form the greater part of the solid fats, such as suet, tallow, cocoanut oil, and palm oil. Olein is liquid, and exists in lard oil, olive oil, sesamé oil, &c. There are varieties or modifications of these oil constituents, and several other compounds exist in small quantities in some fats, particularly in butter. No particular difference in the food value of animal fats and the superior kinds of vegetable oils has been shown to exist. Probably the best (excepting almond oil, which is too expensive for general use) is good olive oil. Butter is considered the easiest of digestion of all animal oils, but it is doubtful whether it is better than some vegetable oils. From 80 to 90 per cent of butter consists of fat, the rest being water, salt, and curd. The principal vegetable fats used as food are olive, sesamé, arachis or nut, and cotton seed oils. Olive oil is the highest priced; it varies greatly in quality. That first extracted by moderate pressure from the fruit is "virgin," then comes "sublime" and "superfine." It is liable to heavy adulteration. In purchasing, care should be taken that it has not been long in stock, nor become deteriorated by exposure to light and warmth in the window. On account of its containing albuminous matter, it readily becomes rancid on keeping. Nut oil has a peculiar nutty flavour and smell, resembling the flavour of peas and kidney beans, but it can be rendered nearly tasteless. Cottonseed oil is extensively used for cooking purposes, and being cheap it is used as an adulterant of olive oil, lard, &c. A good oil for domestic purposes is made by mixing about one part of olive to four parts of cottonseed oil. This has the advantage of being cheap, and the quantity of olive oil is sufficient to impart a richness without the pronounced olive oil flavour which is objected to by many persons. Cottonseed stearin is the solid fat separated from cottonseed oil by cold and pressure. It has a harsh, rough, insipid taste; but by mixing it with olive oil to a buttery consistency it is suitable for making pastry. Cottonseed oil cannot be taken by many, as it disagrees with them. It must be free from rancidity. Most nuts are very rich in oil. The cocoa-nut contains 36 per cent of oil out of 54 per cent of solid

matter. Grated cocoa-nut has been found suitable for lightening puddings and pastry, as a substitute for suet. Cocoa-nut fat is cheap (it is extensively used in making candles and a common kind of soap), but it has a harsh or rough unpleasant taste, with a too marked flavour of cocoa-nut for general use in cooking. The usual strong flavour of the commercial article is probably due to the rancidity which it soon develops. It is said that cocoa-nut oil can now be deodorised. Palm oil might perhaps be utilised for cooking purposes, as it is said to have been used for making butterine, but the commercial article is so rancid and disagreeable as only to be fitted for railway grease, soap, and candle making. Of the grains, oats are the richest in oil, oatmeal containing from 5 to 10 per cent. The ground, or pea nut, according to an analysis by Prof. A. H. Church, contains 50 per cent of oil and 24½ per cent of albuminoids. It is remarkably high in both oil and albuminoids, and ought to be more utilised as a food. It could be used in a powdered state for mixing with puddings, &c., to lighten them, as suet is used.

The fourth food group is a very important one, and the substances in it are much more complicated, and much less is known of their real nature and constitution than in the case of the others. They contain, in addition to the carbon, hydrogen, and oxygen of the last group, the element nitrogen, and a small quantity of sulphur, phosphorus, or iron.

Albuminoids or Proteids.—A number of these will exist in the same food; for example, in wheat there exists albumin, closely resembling the albumin obtained from the white of egg and the serum of blood. The gluten of wheat consists of at least four bodies—gluten-casein, gluten-fibrin, mucedin, and gliadin. From flesh a large number of nitrogen compounds have been obtained, but some of these are decomposition or excretory products of no flesh-forming value. These excretory or waste products form the principal part of Liebig's extract of meat: it has little, if any, true food value.* Some extracts of meat contain in addition soluble albumin and gelatin; but usually the true albuminoids are removed. The similarity, if not identity, of the chief albuminoids of animal to those of vegetable origin are such that it is impossible to say that

* In Liebig's extract, the fat and albumen are separated. It contains little or no gelatine, but consists of creatin, creatinin, globulin, and urea, with organic potash and other salts. It has been much over-estimated as a food. It is a nervous food, allied to tea.—*The Extra Pharmacopœia, Martindale and Westcott*, p. 184.

There is but little left in the extract to nourish the body, and the elements which it really possesses are salts, which may be obtained otherwise at an infinitely smaller cost, and the flavour of meat, which disguises the real poverty of the substance. It should be classed with such nervous stimulants as tea and coffee.—*Foods, Edward Smith, M.D., LL.B., F.R.S.*, p. 88 and 89.

Nothing has been more conclusively shown than that beef tea is not a food. It is nothing but a stimulant. The chemical composition of beef tea closely resembles urine, and it is more an excrementitious substance than a food.—*Prof. Robert Bartholow.*

either is more easily digested, or of greater food value, than the other. Animal casein in the form of cheese, and vegetable casein or legumin existing in peas and beans, are very similar in character, and these forms of albuminoids are more difficult of digestion than others. The albuminoids are the only compounds which are indispensable for the formation of flesh and tissue. Nearly the whole of the solid matter of the lean of meat or muscle substance, freed from fat, consists of the albuminoids. In lean beef there exists 20 per cent, the rest being water, with a little fat and mineral matter. Fat beef may contain 15 per cent, with 30 per cent of fat. Eggs contain 14 per cent. Cheese is the food richest in albuminoids, of which it contains, usually, from 27 to 32 per cent, with a rather larger quantity of fat. Wheat varies very greatly in the quantity of albuminoids. Soft white wheat sometimes contains only 8 or 9 per cent, whilst hard wheat grown for the production of macaroni sometimes contains 18 or even 20 per cent. Bread flour generally contains 10 to 12 per cent, and bread 7 to 8 per cent. The other grains vary from rice with a little over 7 per cent to Scotch oatmeal with 16 per cent. The pulses—lentils, peas, and beans—contain 22 to 25 per cent, being richer in this constituent than any other raw food, excepting cheese.

By the old process of analysis, the total nitrogen was estimated and the quantity obtained of this element was calculated into the corresponding percentage of albuminoids. As flesh foods contain some nitrogen which does not exist in this form, but belongs to the division next to be described, and as both animal and vegetable foods contain other compounds, which are valueless for food, this method gives incorrect results. In the great majority of foods, the error is small, and being usually about the same is of no serious consequence for the purpose of comparing one food with another. Nearly all the published analyses have been made and calculated in this way. In the outer part of the grain of wheat and other cereals, an unusually large proportion of nitrogen exists as nitrates, nitrites, and alkaloids; thus the flesh-forming value of the outer part of the wheat grain has been greatly over-estimated.

There is another kind of nitrogen compounds which contain carbon, hydrogen, nitrogen, oxygen, and a little sulphur in nearly the same proportion as in the albuminoids. These are confined to the animal kingdom. The chief are ossein, which is found in connective tissue, as well as being the organic matter of bones, and which produces gelatin on boiling with water; cartilage, which produces chondrin an analogous substance to gelatin, elastin and keratin, &c. These substances

are capable of producing a certain amount of heat, but less than that produced by an equal weight of starch or sugar. As tissue formers they are of much less value than the albuminoids. The chief advantage of gelatin is, that it is easily absorbed or digested. Considering the very large quantity of water and little solid matter that jellies contain, their nutritive value is very slight. It is, of course, very inferior to milk. In most published analyses of animal food, the gelatin and allied bodies are included with the albuminoids.*

FOOD ADJUNCTS.—This class of foods neither produce heat or muscular force in any appreciable degree, nor form flesh. The volatile or essential oils exist generally in very minute quantity in all or nearly all unmanufactured foods. They impart their innumerable distinguishing flavours or aromas. Without them, or the vegetable acids and alkaloids, food would be tasteless and insipid. The essential oils stimulate the appetite or desire for food and the secretion of the digestive juices from the glands of the stomach and other parts of the intestinal canal. They exist in large quantity in what are called condiments, such as mustard, pepper, and spices. In excess they produce over stimulation and irritation, or may even have a medicinal effect.

The chief vegetable acids are citric, tartaric, and malic. "They relieve thirst, rouse the appetite, and aid digestion by increasing the flow of saliva and gastric juice." † They are decomposed or burnt in the system with the production of carbonic acid as starch is; they are, however, never consumed in sufficient quantity to be of appreciable value as heat-producers. The efficiency of lemon juice in acute rheumatism and of lime juice in scurvy, is thought to be due, not at all, or only indirectly, to the citric acid, but to the potash and other salts that are introduced into the system. Tea and coffee are nerve stimulants; they contain volatile oils, and an alkaloid called either theine or caffeine is common to both. Cocoa contains a less active alkaloid termed theobromine.

Foods are never thoroughly and completely digested, a little always escapes. A little unassimilable matter appears essential to promote by its mechanical action the peristaltic motion of the intestines. The carnivora crunch and swallow the small bones of their victims, and also the skin and membranes, which affords them a certain amount of indigestible

* From the experiments of the Gelatin Commission, appointed by the Academy of Sciences of Paris, and also of a Commission of the Institute of Amsterdam, it was concluded that gelatin and allied substances are of no nutritive value. Recent criticism and investigation have thrown doubt on these conclusions, and it appears that though the albuminoids cannot be wholly replaced by gelatin, it is yet of some value in the reparation of tissue.

For some experiments, see Oerum & Ditzel, Journal of the Chemical Society. Abstracts, 1881; p. 1,049. See also "The Chemistry of Cookery," by W. Mattieu Williams.

† Dr. J. Mitchell Bruce, Materia Medica and Therapeutics, p 128.

matter. The intestines of the carnivora are very short, and man with his longer intestines requires more bulky food, or food which contains more indigestible matter. In some experiments with rabbits, after a few days' feeding on a purely animal diet, they gradually sank and died. The cause of death was found to be a stoppage of the intestines, by the residue of digestion being compacted to a hard mass. The same diet, with a certain amount of bulky indigestible matter, such as horn shavings, was found to give the loose consistency to the intestinal contents, which ensured their safe passage.* The chief indigestible matter of vegetable products is called cellulose. Some cellulose, varying with its nature and the animal digesting it, is capable of being assimilated, and is generally thought to have the same value as starch. In tables of the analysis of foods, that portion of cellulose which is not dissolved by the action, first of weak mineral acid, and then of caustic potash, is included under the term of indigestible fibre, it being fairly assumed that cellulose which will resist this action will resist that of the digestive juices. The bran in brown bread is beneficial in thus aiding the action of the intestines, as well as from its containing salts and other nutritive constituents.

We will now very briefly consider the proportions in which the chief food constituents should be partaken of. We may leave the mineral matter out of consideration, as, if the food includes a fair proportion of wholemeal bread, oatmeal, other cereals, or fruits, these will be obtained in sufficient quantity.

In the following table are shown the quantities of perfectly dry food constituents in several dietaries, represented as ounces consumed each day. The quantities are only given to the first decimal place. The first, called No. 1, is that given by Moleschott, and is generally accepted as representing a model diet for a person of average height and weight, in a temperate climate, performing a moderate amount of muscular work. The other dietaries are given by either Dr. Parkes or Dr. Playfair. The inquirer is referred for further details to Dr. Pavy's work on food, from which these figures have been taken, or to the briefer description in Prof. Church's "Food," or "Food Grains of India."

No.	1	2	3	4	5	6
Albuminoids	4·6	5·4	4·2	4·1	3·5	2·3
Fat	3·0	2·4	1·4	1·6	·3	·8
Starch, &c.	14·2	17·9	18·7	18·8	16·7	11·7

Dietary No. 2 is that of soldiers during war, the mean of English, French, Prussian, Austrian, Russian, Dutch, and American.

* W. V. Knierem, Journal Chemical Soc.; Abstracts, 1885, page 917.

No. 3 is the mean of English, French, and Austrian soldiers during peace.

Nor 4 is that for hard labour, and No. 5 for light labour (oakum picking), recommended for convict establishments and prisons by the English authorities.

No. 6 is a mere subsistance dietary, being the mean of that of London needlewomen, infirmary convalescents, convicts in certain prisons, and the Lancashire operatives during the cotton famine.

We will now give the number of ounces of these constituents in each pound weight of some important foods.

	Haricots.	Oatmeal.	Wheat.	Beef.	Potatoes.
Albuminoids	3·7	2·6	1·8	2·7	0·4
Fat	0·4	1·6	0·2	2·7	0·0
Starch, &c.	8·4	10·1	11·0	0·0	2·8

Haricots, lentils, and peas are of the same composition. The oatmeal is an analysis of the best Scotch, by Professor Church. The wheat is a good sample of white English, containing 11 per cent of albuminoids (an analysis by Professor Church). The beef is one containing a moderate amount of fat. It will be noticed that all except the oatmeal and beef are deficient in fat, according to the dietary tables; but this fat can easily be supplied by adding one of the vegetable oils, butter or a proportion of nuts rich in oil. The natural appetite for fat varies according to the temperature, more being used in winter and in cold climates.

The body has been proved to produce fat from both albuminoid and starchy food, and though a moderate quantity seems very desirable, it cannot be said to be absolutely necessary. We are not acquainted with any dietary tables of nations or classes of people who have excluded both flesh and butter from their food. Yet, though the dietaries we have referred to have worked well, there is nothing to prove that a dietary containing less fat, and a proportionately larger quantity of starchy food would not have done as well—the albuminoids remaining unchanged in quantity. Very much depends upon the varieties of the food; as of two dietaries containing, chemically speaking, the same food constituents, one may nourish satisfactorily, whilst the other may be very unsatisfying. For example, many find that wheatmeal bread keeps the digestive organs in good order, and imparts strength, whilst the same quantity of white bread or even the same food constituents from lean meat and potatoes would not. Much further investigation is yet required before the process of nutrition can be fully understood. Every now and then occur cases which do not agree with the old theories of the physiologists. The

dietaries of millions of people are sadly deficient, according to the usual dietary tables, yet these races get on very well, and show often much greater strength and endurance than that of the average Englishman. Of individual cases, the best known is that of Louis Cornaro, a Venetian nobleman, who wrote, "What with bread, meat, the yolk of an egg, and soup, I ate as much as weighed in all 12oz., neither more nor less. I drank but 14oz. of wine." Cornaro, at the age of 40, found his health failing, when he adopted this very meagre dietary, on which he lived to the age of 100 years. It should be borne in mind that the 12oz. of food is not *dry* food, as is allowed for in the dietary tables we have g ven.

The following case is given by Dr. Carpenter* :—

"Thomas Wood, the miller of Billericay—reported to the College of Physicians in 1767, by Sir George Baker—in which a remarkable degree of vigour is said to have been sustained for upwards of 18 years upon no other nutriment than 16oz. of flour made into a pudding with water, no other liquid of any kind being taken. In nutritive value 16oz. of flour will represent 1·72oz. of nitrogenous matter, or 0·32 of fat, and 11·28oz. of carbohydrates."†

In December, 1888, Mr. T. R. Allinson, L.R.C.P., experimented for a month with a diet consisting of nothing more than wheatmeal and water made into cakes, without the addition of salt. The first week he limited himself to one pound of wheatmeal per day, when he lost seven pounds in his weight; the second week he allowed himself 20oz. and lost three pounds; the third week he took 24oz. daily and gained one pound in weight during the week; the fourth week he ate 28oz. daily and gained half-a-pound more. He found that 1½lb. of wheatmeal per day, was required to keep himself in good working order, doing his ordinary work and walking six miles. Dr. Allinson states that he was in better form and his capacity for mental work was greater. The cost was under 2d. a day. This quantity of 1½lb. contains—albuminoids 2·9oz., starch 16·6oz., and fat 0·3oz. It should be remarked that Dr. Allinson is a Vegetarian, for where less severe dietaries have been tried on men who had previously been accustomed to the usual stimulating flesh-food, failure has resulted, and from such ill-arranged experiments the hasty conclusion has been arrived at that such dietaries were insufficient. It usually takes a considerable time for the system to get accustomed to any decided change of food, although that change may ultimately prove very beneficial. Much condiment, including an excess of common salt,

* Treatise on Food. Dr. F. W. Pavy. Page 467.

† Particulars of this case are given in the *Vegetarian Messenger* for 1888.

unnaturally stimulates the appetite and leads to an excess of food being taken. The plainer the food the better, consistent with its being sufficiently agreeable and tasty. The highest medical authorities are agreed that the English-speaking races consume too large a quantity of albuminous food, due to too large a quantity of flesh being taken. An excess of this produces a great strain on the excretory organs, particularly the kidneys, and leads to a number of diseases. Where the appetite is not unnaturally stimulated by highly-seasoned foods and drinks it is a tolerably safe guide as to the quantity of food and the proportions of the albuminoids.

If it is wished that Moleschott's or any other dietary scale be followed there is no difficulty in doing it without resort to the animal kingdom. Those who take fleshmeat, consume a considerable quantity of potatoes with it, with the instinctive desire of correcting the excessive amount of albuminoids by the addition of starch. The potato is a very poor food, and were it not that flesh is so largely consumed it would probably be little used. The potato and onion pie, or hot-pot of some Vegetarians, is a very defective dish, unless the deficiency of albuminoids be counter-balanced by an abundant admixture of haricot beans or other rich food.

The absurdity and wastefulness of passing vegetable food through the bodies of animals, in which but a small part can be stored, with the ultimate object of merely using them as food, must be evident. In flesh-food, the balance of food constituents (which is more or less correct in vegetable products), is altogether disturbed, and if it be corrected nothing more is obtained than could be got at much less cost from the vegetable kingdom alone. The only important difference in the nature of flesh and vegetable food constituents, in addition to the absence of starch in the former, is that it contains certain stimulating substances, due to metabolism or retrograde metamorphosis of the albuminoids. These have been already referred to. These substances, with traces of volatile oils, give the peculiar and distinguishing odours of flesh-food. They are of no true food value, and the stimulation they give is altogether unnecessary, and may lead to a larger quantity of food being taken than is required by the system. Those persons accustomed to the stimulus afforded by a rich meat dietary find a Vegetarian diet, unless highly seasoned with condiments, insipid and unsatisfying. Their digestive organs, having become habituated to strongly-flavoured food, do not properly respond to that of a plain character. On the other hand, plain-living Vegetarians find a delight in the delicate aromas of fruits and other vegetable products which are

scarcely perceived by the other class. As they cultivate the more delicate and refined gustatory perceptions, so in proportion do the powerful and very decided meat flavours become distasteful or even repugnant. The taste for either animal or vegetable food or certain varieties of these foods, is greatly a matter of habit, and a change, even though it be for the better, produces inconvenience for a time until the system has adapted itself to the altered circumstances. In deciding whether one's present course of life is the right one, too much attention should not be paid to the present conveniences and tastes. If careful reasoning indicates that it is not the best, the change should be made with the assurance that any temporary inconvenience will soon give place to lasting benefit.

Relative Value and Composition of Food.

The height of the columns is proportionate to the weight that

ONE SHILLING WILL PURCHASE

- *Indicates Water.* (white)
- *Flesh Formers (Nitrogenous Matter).* (dark)
- *Indigestible Fibre.*
- *Starch and Sugar.* } *Heat and Force Producers*
- *Oil and Fat.* } *Heat and Force Producers*

The first set of Figures shows parts in every hundred; the others ounces in one shilling's worth of the food.
Where the quantities cannot be shown in the diagram they are placed above the columns.

F.—Indigestible Fibre.
O.—Oil and Fat.
N.—Nitrogenous.
M.—Mineral Matter (Bone Formers, &c.).

Food	Quantity	Figures above the column (p.ct. / oz.)	Figures in the column
Beef, without bone	1 lb.	O 30 4⅘; N 15 2⅖; M 5 ⅘	50%; 30%
Pork	1⅓ lbs.	O 48·5 10½; N 10 2 1/10; M 1·5 ⅕	40% 8½ oz; 8·5 10
Bacon	1⅕ lbs.	O 65·5 12½; N 8· 1½; M 4·5 9/10	22%; 65·5% 12½
Milk, 4d. per qt.	7½ lbs. 1 lb. solids	Sugar 5% 6 oz.; O 3·7 4½; N 4· 4⅘; M ·75 9/10; Water 86·6%	5%; 3·7%
Potatoes, 15d. per score	16 lbs.	F ·8 2; O ·2 ½; M 1·0 2½; Water 75%	21% 54 oz; 2% 5 oz
Pearl Barley	5 lbs.	F ·8 ⅗; O 1·3 1; M 1·1 9/10	14·6% 11¾; 76% 60⅘ oz; 6·2% 5 oz
Wheatmeal	5 lbs.	F 2·2 1¾; O 1·2 1; M 1·6 1¼	15% 12; 70% 56 oz; 10% 8 oz
Scotch Oatmeal	5 lbs.	F 4 3⅕; O 10 8; M 2 1⅗	5%; 64% 51·5 oz; 10% 8 oz; 15% 12 oz
Haricots	5 lbs.	F 5·5 4⅖; O 2·5 2; M 3 2⅖	14% 11⅕; 52% 41⅗ oz; 23% 18⅖ oz
Lentils, also Split Peas	5 lbs.	F 7 5⅗; O 2·5 2; M 3· 2⅖	14% 11⅕; 49·5% 40 oz; 24% 19 oz
Rice	7 lbs.	F 1 1 1/10; O ·5 ⅖; M ·5 ⅖	14·5% 16¼; 76% 85 oz; 7·5% 8⅖
Indian Meal	12 lbs	M 2 3¾	14% 27 oz; 65% 125 oz; 5% 9·6; 9%

No. 10.

ESCULENT VEGETABLES.

By Mr. Leo H. Grindon.

THE lecture on Tuesday, March 13, was given by Mr. Leo H. Grindon, and was upon "Esculent Vegetables." Mr. Alfred Tongue presided, and in a few appropriate remarks introduced Mr. Grindon to the audience, which was composed largely of the members of the various scientific societies in Manchester. The usual dinner preceded the lecture.

Mr. GRINDON said: This evening I intend dealing with that class of food products that commonly go by the name of vegetables. They are of a very humble character—the turnip, the carrot, the onion, the leek, &c. The first thing to remember is that although we have such a vast number of plants in the world, very few of them are adapted for the food of man. There are about 250 families of plants; but of that number there are only about six families that supply us with our esculents. It is owing to man's efforts that the greater portion of these are now possessed by us. Some of these vegetables have been in cultivation literally from time immemorial, and the early history of them is quite undiscoverable. Take, for example, the lentil. Lentils, onions, and leeks are mentioned in the Old Testament, so that a distinction has to be drawn between the ancient and the modern vegetables. The rhubarb eighty years ago was only just coming into favour in this country. In the year 1808 two or three large bundles were offered for sale in London, but the people had no fancy for it. They said they did not like to take physic, for rhubarb then meant simply medicine. Little by little it grew into favour, and now it is cultivated everywhere.

Those vegetables found in the large family of plants which is named the pea family may be placed the first in the order of merit. This family includes some 7,000 species. Many of these plants are not cultivated, except in India and a few other countries. In our own country we know of some half dozen of them, leading off with the most ancient, the lentil and the bean. The reason that these stand first is because the seeds contain a considerable quantity of that particular chemical element which is known as nitrogen, the basis of what has been distinguished by some of the German chemists as protein, a substance exceedingly important

to the building up of our systems. If there is any objection to them, it is that with some they are in a measure indigestible. The seeds of these plants contain casein.* There are two kinds of lentils—the red lentil, chiefly found in Egypt; and the brown lentil, largely grown in Germany, but not so much used in our own country as the red lentil.

Next to the lentils we may place the broad or Windsor bean. This, like the lentils, comes from Egypt, and is also grown in many other places. The other species of beans are of comparatively recent production. The common French bean which supplies the haricot is a native of the East Indies, and has been known only for some few centuries. The scarlet runner is a native of South America, and we have had it for about 250 years. The two queens of the old vegetables, especially for people who have not got very strong digestions, are the cauliflower and the asparagus, because in these we have all the potentiality of the plant in this rudimentary state, and all that would have opened out into stem, and branch, flowers, and seed—everything that nature intended to produce. I would put these two next after the peas and beans. Then we have the varieties of the cabbage, the red cabbage, the Brussels sprouts, and many other kinds that gardeners value.

The value of greens has been recognised from the time of the ancient Romans as an exceedingly valuable adjunct to our food supply, although they are not so nourishing as the pea and bean kind. A great many similar vegetables belong to this family, such as the seakale, the watercress, &c. Then we come to the asparagus, which belongs to the lily family, from which we get a great number of esculent plants. The onion itself is a true lily plant. The antiquity of the onion is so profound that we have no certain knowledge of when it was first used. We find it mentioned in Homer. It is mentioned in the Old Testament, and several of the old Roman authors have some reference to it. It certainly will count as one of the most nourishing and substantial vegetables of its class. In the softer climates the onion is very mild compared with what we have in England. Among the onions I prefer is the Portugal onion, which, milder than the English onion, is a good substantial vegetable food. There is also the leek, in which we have one of the very valuable vegetables, and which is exceedingly wholesome, good, and sustaining. In the great family of composite plants we have a predominance of the ornamental, and very little indeed that can be really serviceable as supplying food. The artichoke is one of the handsomest growing. This has a flower-bud precisely corresponding to the bud of the thistle. The artichoke is an exceedingly

good and nourishing food, and one that ought to commend itself more largely to Vegetarians. We have another vegetable, which is known as the "Jerusalem" artichoke. The great tubers are the progeny of a kind of sunflower, which grows naturally in North America, so that really and truly instead of being an artichoke it is a sunflower. It is very nourishing, and possesses practically the same qualities as the potato, being a tuber something like that plant, and although not so much used as it might be, yet it ought to come among the staples, being so easily grown, and the yield being so large.

Another order of plants which are largely used for foods is that in which the carrot and turnip are classed. These foods are remarkable for the abundance of sugar they contain. Then we have our common celery and lettuce. Potatoes, so largely used, contain very little besides starch. They are very valuable indeed as a carbonaceous food, but there is only about two per cent of real flesh and blood nourishment in them. There is also the beetroot, which is renowned for its abundance of sugar. There are also the spinach and the greens, the horseradish, and the aromatic herbs, about which I need do little but mention.

Mr. GRINDON concluded his lecture by a reference to the mushroom, which contains much more that is similar to animal food than anything else of a vegetable character. The ordinary mushroom is by no means the only one that is a very good food. We have wild in England, in abundance, at least twenty other species of fungi which, when properly cooked, may be ranked as great delicacies. He then described the manner of discriminating between good and bad fungi.

The Rev. JAMES CLARK said his family had made "beef" tea out of mushrooms to the satisfaction of their medical attendant. If mushrooms came into general use, they would no doubt be preserved, so as to be obtainable throughout the year at a considerably lessened price.

The usual votes of thanks brought the meeting to a close.

No. 11.

THE NATIONAL FOOD SUPPLY.

By Mr. Peter Foxcroft.

THE meeting on March 27 was a social gathering. Mr. Joseph T. F. Bishop occupied the chair, and there was a large attendance. During the evening a paper was read by Mr. Peter Foxcroft upon "The National Food Supply." The remainder of the evening was devoted to music, &c.

Mr. FOXCROFT said: As we look around the world we find that Nature, like a judicious mother, has regard for her millions of children, and without lack or stint bountifully provides for all their needs. Grain is the standard food of mankind, and in addition to grain some countries produce large supplies of fruits and various kinds of vegetables. The growth of the staple foods of each country is of the greatest importance, and therefore should have the attention and encouragement alike of the Government and the people in order to provide against calamities within or invasion from without.

The grain grown in different countries varies; whilst with us it is chiefly wheat or oats, in other lands there are buckwheat, rye, maize, millet, &c., &c. The home growth of staple foods gives a guarantee to a nation for to-morrow's rations independent of any supply from other countries. What can be more important to a nation than its food supply? When an individual leaves home to take a journey he makes his calculations as to the amount of cash that is likely to be required, and provides the necessary amount; so the provisioning of a nation should be considered with equal care and foresight.

It would be a difficult task, we think, to refer to any civilised country whose people are so dependent upon their neighbours as we are for that which is the staff of life in every household. We have it on good authority that land under cultivation at present, and such lands as could be put under cultivation, would be sufficient to supply with food five or six times the present population of this country. But this extended food supply would not permit of the continuance of the present system of cattle feeding. No; the productions of the soil would need to be used at first hand. Such a change in the employment of the soil would revolutionise the prevailing state of things, for the demand for the

labour market would be largely increased in the farming districts. The peasantry would find sufficient employment at home, and would not need to seek it abroad in the already over-crowded cities.

The almost universal cry about the unemployed in this country is that some special arrangement should be adopted by Government by which they could be assisted to some foreign or colonial country, and thus thin our land by emigration. But this alleged necessity of semi-transportation arises from a perversion of the habits of the people. If we in this country were to change the national agriculture from the feeding of cattle to the growing of food direct for man in the form of grain and fruit, the employment on the land would absorb the surplus labourers in the country districts. Prosperity in past days caused the rents of farms to increase very much, but farm produce is now reduced in price, and if rents were reduced to what they were at one time the producer could sell his goods at as low a price as the farmer of any other country.

Owing to the increased demand for flesh-foods, cows and sheep enhanced in price, and farmers in some districts turned their attention to the rearing and fattening of cattle. Thus the produce of grain fell short, and in an increasing degree we are dependent upon the foreign supply of food-stuffs. The more the land is cultivated for the production of flesh (as beef and mutton) and the more dependent we shall be on foreign productions. This system of cattle-feeding farms deprives the husbandman of labour. Cattle raisers with a farm of 200 or 250 acres would not employ more than one man, excepting at the time of hay harvest, and then extra help only for about four weeks. In farming for growing wheat, oats, and potatoes eight or ten men would be regularly employed, and, in addition to those who are regularly employed, a considerable number are engaged for hay and corn harvests. In spring many are required for planting potatoes, and a very considerable increase of labourers is required when the potatoes are ready for lifting.

The demand for flesh as food may be credited with depriving hundreds of thousands of men of that farm labour which is so conducive to health, and also in making us so dependent on foreign countries for that food which is about two-thirds of our daily needs.

In consequence of the lack of labour in this country some of our most energetic men frequently leave us. The evil of emigration is that those who are the fittest for work depart, and those most unfitted to work remain.

America, Russia, France, and India each provide their own inhabitants with that which is food for their people, and have to spare. If any of

them were to be invaded by a combination of great powers the supply of food would be within their own borders. May this country never be placed in such jeopardy; but let us remember that prevention is better than cure.

The commerce of a country like England absorbs the thoughts of most of the intelligent and speculative part of its community, and has led to the partial neglect of the cultivation of the soil. No nation under the sun can boast as England can of the progress of trade, not only in the manufacture of wearing apparel, but of almost every other kind of goods, especially those of a substantial nature. Being the foremost in the market in the production of articles suitable for every country, our talent and energy has been concentrated in that direction to the detriment of other weighty and necessary considerations. It is customary to decide the most prudent course to take by looking at pounds, shillings, and pence. On the surface this has the appearance of great wisdom. We admit that trade and commerce cannot be carried on to any great degree without them. But we think that it seems to be to a considerable extent man's failing to press after gold; and this is especially the case with speculators. We have numerous instances which we can record as proof of this—that the accumulation of wealth is so fascinating that comforts necessary to our real wants are lost sight of.

The advance in wages during the past 50 years has enabled the working classes to imitate the wealthier portion of society, not only in the practice of eating and drinking, but also in the expensive apparel worn by almost every degree of the community. Comfort is the right of the labouring classes quite as much as of their wealthy neighbours, and no one wishes to debar them from anything by which they can be benefited either physically, morally, or intellectually, The advance in the remuneration for work in many trades has been from 20 to 30 per cent. But the condition of trade causes a fluctuation in the remuneration of the workman.

Food requisite for health of body and mind can be procured in most cases for one-third or two-thirds the price, and some kinds at one-fourth of the price half a century ago. Men are given to follow the practices of their fellow-men very much in the things which gratify their tastes. So the artisan follows his wealthy neighbour both as to the provisions of his table, dress, and amusements. The wealthy man being higher in his general education and position than his workmen, is supposed to be possessed of knowledge which leads him to the possession of everything which is capable of gaining the greatest comfort of life—good health. This is certainly a delusion. The wealthy as well as the poor suffer in

health, though the wealthy have many aids conducive to health that the poor in their most favourable position cannot command. In comparing the wealthy and the indigent or working man with regard to finding employment for the medical profession, we may safely say that the amount received from a rich family would double that of two working men's families.

When the rich indulge largely, as they do at times, in luxurious food—in fish, flesh, and fowl, such indulgence frequently ends in applying to their medical attendant for relief. Restriction from the cause is mostly resorted to, and a course of medicine imposed. This is of almost everyday occurrence with those who indulge at the table, especially with foods that seem to be unnatural to the digestive system. We mention this particularly, as being one of the causes of additional sickness.

The land of this country is now and has for some time been neglected in its cultivation for food for man in the form of roots, grain, and fruit. Yet the loss which we suffer under the present system of preparing food for man in the form of flesh is enormous. Any servant acting upon such a system as this nation pursues would very soon be discharged as a foolish manager. There is an animal whose flesh is in great request amongst connoisseurs as one of the choice and rare bits. It is the relish of the morning's feast, and is by many preferred to any other kind of natural food, however clean and delicious. This renowned animal is not in any way respected when alive, but most respectably interred after the butcher has pierced it to the heart and drawn the last drop of blood from its body; it is changed from its degenerate and filthy condition, and the despised pig becomes esteemed Bacon. From authorities on feeding of animals we give the cost of pig-feeding. The cost of producing one pound of bacon from barley is as follows:—63lb. of barley is required to produce 10lb. of bacon. This process increases 6 to 1—*i.e.*, 1lb. of barley costing one penny, the bacon would cost 6d. per lb. for the feeding purpose alone. The pig has to be purchased at first, and then to be kept eight or nine months independent of the feeding, which adds 5d. to every pound. A young pig costs 20s. to-day in our neighbourhood. The time for keeping a pig depends upon circumstances. If it takes to feeding quickly seven months may suffice; eight or nine months is no uncommon period to keep them. If the pig costs 6d. per lb. to fatten it, the pig might weigh 12 score pounds when fed. Now the price of the pig, added to the cost of feeding, would add another 1d. per lb. to the 6d. for feeding, which brings it to 7d. per lb. for the bacon, against 1d. per lb. for barley. As to the value of it when brought to the table, we may notice that Prof. Church, in his work on

"Food," says that bacon contains 22·3 per cent of water, barley 14·6 per cent. of water. We see that 8 per cent of water has to be paid for at the rate of 7d. per lb.; 8 per cent, equal to 12½lb. at 7d., is rather more than a farthing added to the cost already named; 7d. per lb. for bacon equals now 7¼d. per lb., against 1d. per lb. for barley. Let us follow this course of cattle-feeding a little further. The cost of keeping 20 sheep on turnips and linseed cake per day is 4s., or 2½d. per day each. The sheep increase in weight, during 16 weeks, 39½lb. each. The cost per day is 2½d. nearly. Multiply 2½d. by 7 days, and that by 16 weeks, gives 280d.; that divided by 39½lb. brings the cost of the mutton to about 7¾d. per lb., leaving out of the calculation the value or cost of the sheep before the 16 weeks required for fattening. The above represents sheep fattened in comparative confinement. Sheep fattened while in the grass are fed at a lower cost, but they never attain such a state of fatness as the former.

One more comparison as to the produce of flesh and the waste of food consequent upon its use. Dr. Charles D. Hunter gives the following account of the results of feeding on mutton, milk, wheat, and potatoes, showing the length of time required to consume the produce of 100 acres of mutton, milk, wheat, and potatoes:—

Kind of crop.	Per 100 acres.		No. of men supported for 52 weeks each.
Mutton	26,000 lb.	......	41 men.
Milk	193,300 „	......	53 „
Wheat.......................	150,000 „	......	250 „
Potatoes....................	1,430,000 „	......	683 „

Taking the produce of the 100 acres of mutton, 41 men could be sustained for 52 weeks.

Taking the average of the production of milk, wheat, and potatoes from 100 acres, nearly 330 men could be sustained for 52 weeks. This is but one more proof that the soil of England could maintain eight times the population on products direct from the land than when those products come by the circuitous route of the stomachs of animals.

The present system of feeding animals is a waste, besides advancing the price of food. Taking the lean part or flesh of animals, the analysts show that there is not more than 25 to 30 per cent of solid matter suitable for giving nourishment. Then it follows that the rest must be water, 70 to 75 per cent. Take 30lb. for food and 70lb. for water—70lb. of water would cost 8d. per lb.; the price of mutton would include £2. 6s. 8d. for water. This shows a double waste in producing flesh for the table over that of an average of all the roots, pulse, and grain.

It is of consequence that all unnecessary waste of food should be avoided. Waste not, want not. There are different ways in which food

is wasted. The land that produces barley and hops for the manufacture of intoxicants may be considered as worse than lost. The food destroyed in the manufacture of intoxicating drinks in the United Kingdom, in 1876, was equal to 92,000,000 bushels of grain, or more than twice the quantity grown in the whole of Scotland. The grain, if converted into flour, would make 1,300,000,000 four-pound loaves, or sufficient bread to supply a population of ten million persons for a whole year. To compensate for this wanton and wicked waste of food the nation imports from abroad £40,000,000 worth of corn and flour, and yet millions of the population are constantly on the verge of famine.

Six pounds of barley, costing 6d., produce a gallon of beer. The nutriment contained in a gallon of beer is as costly as though a man gave 30s. for a four-pound loaf. Such extravagance would be looked upon as madness in the individual. Is it less so for the nation?

No. 12.

VEGETARIANISM AND MANUAL LABOUR.

By Mr. Thomas Mansell.

MR. THOMAS MANSELL, foreman at the Thames Ironworks, a large shipbuilding yard in London, delivered a lecture upon the above subject on Tuesday, April 10, at the Brotherton Hall, Fountain Street, Manchester. The audience consisted of working men, employers of labour, &c. Mr. Thomas Shaw presided. In the course of his lecture Mr. Mansell said: For something like thirty years I lived upon a mixed diet, and believed that it was right to take animal flesh. I was, in fact, taught to believe that it was absolutely necessary to take fleshmeat to build up a sound constitution. But, although I think I have a good constitution, it must not be thought that it has resulted from my eating fleshmeat, for I did not take a large quantity of food of that kind, having been brought up upon oatmeal porridge, bread and milk, &c.; it cannot therefore be said that my constitution was wholly built up on animal food.

But to-day I am a Vegetarian. And why? Because I believe it is right and just to be a Vegetarian. The first thing that influenced me in the direction of Vegetarianism was the beneficial effect which Vegetarianism produced on my wife's health. She had long been a sufferer from varicose veins, as well as from another and more serious disease, and had consulted many doctors without result; and had it not been for her trying Vegetarianism I believe she would have died. The results of the change of diet became evident at once, and she now enjoys health.

Now, when I saw the improvement in my wife's health, I reasoned this way: If Vegetarianism did so much for a person whose constitution was so far broken up, what would it do for me, who was in tolerably good health? Therefore, I thought it was right for me to give Vegetarianism a trial. I maintained my health and strength on the new diet, and, of course, began to be talked about. Of course I met with a great deal of opposition, but I am glad to tell you that some of the men who were most bitter against the Vegetarian system then are Vegetarians themselves now. They have studied the question, and are therefore

willing to take back what they had previously said against our practice. I may add that I believe a Vegetarian diet gives the constitution more resisting power, more "stamina," as people say, than the ordinary diet. I have enjoyed better health, for instance, than my brothers and sisters, who have kept to the latter.

Physiology shows that the constituents required for the proper building up of a healthy body exist in cereals. Working men often will not believe this; but many are gradually coming round to our side. You all know what "puddling" in an ironworks means, and what hard work it is. Well, we have "puddlers" in London who are Vegetarians. We have "shinglers," too, whose work is almost as hard, working upon a Vegetarian diet. We have "moulders" also who are Vegetarians. We may well maintain that our system is adapted to hard manual labour, I think, when we find puddlers, shinglers, moulders, forgemen, blacksmiths, engineers, and platers living well, and doing their work well, upon a Vegetarian diet. A man, after such work as theirs, is naturally fatigued, and he wants some food that will re-build his body. He wants food that can be assimilated easily, without bringing on indigestion; for indigestion soon results in failure of health, as workmen who are living upon a mixed diet frequently find out.

Some of our men think they derive all their strength from their beef and mutton. Therefore, when the opportunity offers itself, if they can afford it, they have an extra chop or steak, or something of that kind. Then they have a fit of indigestion. When I took fleshmeat I used to suffer severely from indigestion, but since I became a Vegetarian, now thirteen years ago, I have not suffered from indigestion any more. I have maintained my strength, and can do my work to-day far better than I could when I took a mixed diet. I have a son who is working a ball furnace at our ironworks, making special or trial iron. He was working very hard, and lost weight considerably, when I put him upon a Vegetarian diet, and, finally, upon the very simplest food, with excellent results. For the last ten months he has had no cooked food except bread. I do not, however, urge you to do this. Take your oatmeal porridge and lentil soup and vegetable dishes; but the longer you continue the Vegetarian practice, the more will your preference for simple foods increase.

The great point in Vegetarianism is to have good bread. Let me advise you to ask your bakers for whole-meal bread. I am glad to say that bakers are now making it a practice of baking brown bread, so that there is little difficulty in obtaining it. You all know the advantages of brown bread; you know how the white loaf is apt to

consist largely of starch, and how deficient it is in phosphates; its use resulting, therefore, in the occurrence of rickets among children and decayed teeth in grown-up people.

I have spoken so far of the good results of Vegetarianism as a reason for making the change. Now do not think that I undervalue the difficulties to be encountered in making that change. I, for my part, found it more difficult to give up flesh than to give up alcohol. But however difficult it may be do not be prejudiced against the change, give it fair reasoning. Looking at the thing fairly and honestly, I have no doubt you will come to the same conclusion that I arrived at. My experience is that a man can get through all his necessary duties upon a Vegetarian diet better than upon a mixed or what is known as a flesh diet.

In eating flesh, after all, we only get our food at second-hand, and then nearly always in a diseased condition. Something like 75 or 80 per cent of the flesh that comes into the London market is more or less diseased. I don't suppose the people of Manchester get all theirs of the quality of the other 25 or 30 per cent. We know well enough that the diseases the cattle are suffering from when killed do not always prevent them from getting into the market.

Now a word about the economical side. Of course fleshmeat, if it is anything like good, costs something like 8d. to 10d. or 1s. a pound. The meat, to begin with, has often nearly 70 per cent of water contained in it, so that there is really only about one quarter of it with which to build up the body and give force and heat to the system. The cereal foods, on the contrary, we can get in London, as you no doubt can do in Manchester, at about 2d. per lb. The better kinds of fruit may average more, but we can generally get oatmeal, wheatmeal, rice, lentils, or beans at this average rate. And these are dry foods, which when cooked or made into bread are greatly increased in bulk instead of losing bulk in the cooking, as is the case with animal food. And since our Vegetarian food gives better results in the matter of health, it does seem ridiculous to give 9d., 10d., or 1s. per lb. for fleshmeat, when we can get four times the amount of food for the money. As I have before said, a change from the ordinary mixed diet to Vegetarianism gives one the ability to do the same amount of work, and that with less fatigue than formerly. The difficulty of digesting flesh often affects the heart's action, so that the eater is not so strong as he might be from a corresponding quantity of Vegetarian food. This I maintain, from the observations I have made at the Thames Ironworks. Had my son not given up eating flesh he would not have been able to go on with his work. Beans and peas are, as

you know, great strength-giving foods, and may with advantage form part of the dietary of those who have much manual labour to perform. To those whose work lies at the desk and indoors too much of this food may prove heavy and indigestible, because it contains so much nitrogenous material. Some people on this account, through a want of consideration, condemn the pulse foods, but men who have a great deal of exercise, and are working out of doors, require such food, which takes the place of the fleshmeat they formerly ate; they find it agrees with them. It is cheaper, and if the working man could only be convinced of this he would be greatly a gainer in pocket. The gain in pocket we can easily estimate; the gain in health is sometimes beyond all value. We had a man in our works who was believed to be going into a consumption. He has had a most surprising recovery through his becoming a Vegetarian. When we have statistics of the results of Vegetarianism, I do not doubt that many cures will be recorded which are now unnoticed.

But remember always that I do not urge our system merely as a diet cure for invalids, but as the right system of food for strong men. Do not wait until your health breaks down, but give the system a fair and honest trial at once. You will find it healthier, and right from many points of view. My point of view is that all the elements that are necessary for building up a healthy constitution exist in fruit, grains, and nuts, and that a working man can maintain all his strength and vigour better upon these foods than he can on a flesh diet. (Applause.)

Cordial votes of thanks were passed to the lecturer and chairman for their services.

No. 13.

VEGETARIANISM IN PRACTICE.

By Mr. Joseph Knight.

On Tuesday, the 24th of April, a lecture on "Vegetarianism in Practice" was delivered by Mr. Joseph Knight. The chair was occupied by Mr. W. E. A. Axon. The lecture was preceded, as usual, by a dinner to invited guests.

Mr. Knight said: So many errors are made by those who take up the practice of Vegetarianism that a reference to some of them, and a few suggestions as to the judicious practice of the system, may be profitable to those who wish to enter upon the practice. I must ask your forbearance should I appear to be egotistic in my remarks, and to draw freely from personal experience; but occupying, as I do, an official position, it behoves me to exercise due care that any opinions which I as an individual may hold, be not put forth in such a way as to commit my fellow-members, or place any responsibility upon the Vegetarian Society. The views and statements put forth in this lecture I am personally responsible for.

I have spoken of errors being made. In saying this, I hope no one will think that I am speaking slightingly of those who make the mistakes. My remarks are not intended to be in the least derogatory of any who take up the Vegetarian practice simply because they err. There exist too many causes for stumbling. Probably the majority of blunders in practice arise out of errors in theory, and misleading theories are too prevalent to admit in many cases of an accurate and judicious practice being adopted with ease, or without the exercise of great care and judgment. It will therefore be advisable to look at some of these theories, and try to discover how they are erroneous, and why the errors exist. It is not altogether to be wondered at that those who are inquiring into the practice should sometimes go astray when dictionaries with all the weight of learning which has entered into their construction give forth to the world such vague and misleading definitions as they often contain. Chambers's Etymological English Dictionary, for instance, calls Vegetarianism "the theory and practice of a Vegetarian," defining that

individual as "one who holds that vegetables are the only proper food for man." Again, Stormouth's Dictionary says that Vegetarianism is "the theory and practice of living solely on vegetables." The idea pertaining to the word "vegetable" in the public mind is rather confined; seldom getting beyond the greengrocer's store.

I merely mention these as instances. Others can be found in a very interesting and useful pamphlet by Professor Mayor, entitled, "What is Vegetarianism?"* The difficulty is aggravated when we think of the press—of newspapers, books, magazines—in a word, of that great educator of the public mind, current literature. I do not here speak of those statements which are sometimes made, which are so transparently fictitious as to offer no difficulty in seeing at once that they are incorrect; but I refer to such statements as go forth with a semblance of authority in well conducted journals, statements which appear to be written with some knowledge of the subject, and to have emanated from writers of influence. There may be a certain amount of knowledge, but it is not always accurate, and may lead astray. Let me instance what I mean. We are indebted to the writer of "Men and Manners," in *Cassell's Saturday Journal* for an ingenious description. This writer had been condemning those who were Vegetarians, and who used milk and eggs. He was taken to task by correspondents who were themselves Vegetarians, and had a practical experience of Vegetarianism. In the course of his reply in the columns of the journal, this passage occurs, "Now I know quite well what the Vegetarian Society does, and wants to do; but there is a vast deal of difference between Vegetarianism with a large V and Vegetarianism with a small one. . . . Vegetarianism with a large V means, according to the etymologists of the Vegetarian Society, the science, or system, of

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* What does Vegetarian mean? Turn to the dictionaries. *The Imperial Dictionary of the English Language.* By John Ogilvie. New edition. By Charles Annandale. London: Blackie and Son:—Vegetarian: 1. One who abstains from animal food, and lives exclusively on vegetables, eggs, milk, &c. Strict Vegetarians eat vegetable and farinaceous food only, and will not eat butter, eggs, or even milk. 2. One who maintains that vegetable and farinaceous substances constitute the only proper food for man. Vegetarianism: The theory and practice of living solely on vegetables. No lexicographer has learnt our secret, "fruit and *farinacea*." The vulgar error that we devour a wheelbarrow load of cabbages at a meal is fostered by definitions like these. The great Oxford dictionary of Dr. Murray, instructed by Mr. Axon, will do us justice, and make such strictures as Sir Henry Thompson's impossible. W. W. Skeat. *An Etymological Dictionary of the English Language* (Oxford, 1882), classes amongst derivations from *vegetare*, "*Veget-ar-i-an*, a modern coined word, to denote a *vegetable-arian*, or one who lives on vegetables." Dr. Webster, *Complete Dictionary of the English Language.* Revised by C. A. Goodrich and Noah Porter (George Bell): "*Vegetarian:* One who holds that vegetables constitute the only proper food for man,

wholesome feeding and living; Vegetarianism with a small V means, in popular language, the eating of an exclusively vegetable diet."

It is a pity he should have called that by the name of Vegetarianism. He further goes on to say: "For valetudinarians of a certain type Vegetarianism with a big V may be excellent; for some even Vegetarianism with a little V may be advisable." So the would-be Vegetarian is here confronted with another difficulty. Different descriptions of Vegetarianism have been previously given, but by authors as various; now he meets with one presumable authority who gives two several definitions, each qualified with an adjective. One of the bugbears of school-life—and that not without reason—is grammar. Like a maze, it is full of intricate windings, and just as one is fondly anticipating an emergence out of some difficulty into a clear path, all unexpectedly one is brought face to face with an obstruction which bars further progress, and necessitates a retracing of the steps and a further search before the right road is discovered. One of the things I remember being taught as a schoolboy was that "an adjective modifies a noun." To my boyish mind this did not appear quite to fit in with facts, as I had imbibed the notion that to modify was to lessen in value or to depreciate. But if a "splendid success," "perfect happiness," or "larger income," were considered, I could not understand that the income was modified by being larger, or the success by being splendid, or the happiness by being perfect. Later on I was instructed that "an adjective qualifies a noun," which seemed a little nearer, though, I thought, not perfect. The passage from "Men and Manners" reminded me of these school difficulties, and it struck me that taking the old notions of "modified" and "qualified" as the work of adjectives, and applying the same ideas in this connection,

and who lives solely upon them. *Dunglison.*" The word is unknown to Heyse (*Fremdwörterbuch.* 14th edition. Hanover, 1859). The *Fremdwörterbuch* of Daniel Sanders (Leipzig, 1871) defines *Vegetarianer* "Wer nur von Vegetabilien lebt," he who lives on vegetables alone. This *nur*, "solely," is not foisted in elsewhere; *e.g.*, *Botanophag* is "Pflanzenesser," "plant-eater;" *Hippophag*, "Pferdefleischesser," "horse-flesh-eater;" *Carnivor*, "Fleischfressend," "flesh-eating;" *Anthropophag*, "kannibal." The fairest interpretation is given under *Galaktophag*: "Milchesser, Einer der sich haupsächlich von Milch nährt," milk-eater, one who *principally* feeds on milk. Littré, *Dictionnaire de la Langue Française. Supplément.* Paris: Hachette, 1877:—Végétarianisme, *s.m.* Alimentation par les végétaux. Le vrai végétarianisme n'est pas l'état primitif de l'humanité, H. de Parville *Journ. des Débats*, 25 Oct., 1877, *Feuilleton*, 1re *page*, 3e *col.* Végétarien, *s.m.* Celui qui ne vit que de substances végétales. Les mêmes aliments que nous, carnassiers, nous tirons, de la viande, le végétarien, secte plus religieuse que scientifique, les tire de ses choux, L. Hermann, *le Muscle*, dans *Biblioth. univ. et Rev. suisse*, t. liii., juin, 1875, p. 215. "What is Vegetarianism." By Rev. Prof. J. E. B. Mayor, M.A. Price 1d. The Vegetarian Society, 75, Princess Street, Manchester.

we may consider "Cassell's "Vegetarianism with a large V" as Vegetarianism *qualified*, and "Vegetarianism with a small V" as Vegetarianism *modified.*

But we want neither of these as the definition for Vegetarianism. If we use an adjective at all, it should be by placing "true" or "simple" before Vegetarianism; and it is that Vegetarianism which the Vegetarian Society exists to promote. Why I feel so much confidence in saying this is because the founders of the Vegetarian Society were the originators of the word "Vegetarianism," and surely those who originated the word ought to know what they meant, and what they wished to be the popular understanding of the word. Many misleading statements have been made, which are by no means confined to the opponents of Vegetarianism. The misleading statements that Vegetarians themselves have uttered have probably done more harm than the statements put forth by its opponents, or by those, at least, who are not its advocates. It is a matter greatly to be regretted that Vegetarianism should be bound up so frequently as it is with particular views, or particular phases of thought on other subjects. Owing largely to the utterances of Vegetarians, many erroneous ideas have gone forth, such as that Vegetarians are not allowed to use alcoholic drinks, or to take tea and coffee, or to smoke; that they must not eat sugar, or must renounce salt; that strict Vegetarians never take milk and eggs; that Vegetarianism is a religion, or, at least, is a part of some peculiar shade of theological or religious belief. Individual Vegetarians may do all these things, or may hold peculiar views, but because they do so it does not follow that these things are a necessary part and parcel of Vegetarianism itself. Vegetarianism is a most simple thing, and I suppose it is because of its great simplicity that there exists so many misunderstandings about it. (Hear, hear.) It is not an ideal in food and drink; it is an actuality which has proved widely beneficial; it is a reality, something which can be practised—not something which can only be looked at with desire from a distance; but Vegetarianism is a system of diet which leaves its adherents absolutely free, with one exception, to choose from all the entire range of food products which the world offers. The exception is that section of foods which are obtainable only by loss of life. Thus we see it to be a system so simple that none, if they choose to look at it fairly, need make any mistake as to what it is. It leaves everybody free to do as they will, and, excepting in the one matter of eating of anything that has had animal life, every Vegetarian in the selection of food, may exercise individual choice. You will pardon my laying so much stress on this point. We may go as far as we please

beyond this simple principle—we may indulge in the most luxurious living, or take the simplest of fare. But whether the system be carried out luxuriously or plainly, is in no sense a condition of Vegetarianism itself. Perfect freedom—and herein I think is one of the great charms of Vegetarianism—perfect freedom is left to every individual to do as he or she will. We have a lot of liberty, but it does not follow that because we have this liberty we are going to exercise it rightly or wisely. We may make mistakes; some people do, and were it not for the mistakes that are made, there would be no occasion whatever for what I have first said. But the Vegetarian system may be followed wisely or unwisely, and if I can offer a few suggestions that will help anyone who is adopting the system to begin under wise methods, then the purpose of my lecture will be fully answered. (Applause.)

A few hints may perhaps be derived from a reference to personal experience in the commencement of the system.

I call to mind one Saturday afternoon when, in the reading room at the Crystal Palace, a little pamphlet was brought under my notice, the penny *Herald of Health*, with a few words about Vegetarianism. This little pamphlet contains four portraits of eminent Vegetarians. The few words, and they were very brief, of biographical sketch of those men at once impressed upon the minds of my wife and myself that there was something in Vegetarianism worth looking into. We did not decide to adopt it out and out. It was Saturday, and the Sunday's joint was in, which may have had some influence in preventing our instantaneous conversion to Vegetarian principles. (Laughter.) No decision to accept those principles was made at that moment, but on the Monday following my good wife went to town and bought a number of books upon the subject, and we commenced studying the question at once. We were not authorities upon Vegetarianism, in fact, were ignorant in the matter; and probably the best thing we could do was, instead of plunging headlong into something we knew nothing about, just to look into it first. These books explained somewhat more about Vegetarianism, and in a few days, instead of simply thinking that Vegetarianism was worth looking into we decided that it was worth trying, so that by the middle of the week we were prepared to try it. More books, a wheatmill, a supply of wheat, the preparation of our own meal, the baking of our own bread, the purchase of a water filter, the abandonment of tea and coffee, and various other things of a similar character, very speedily followed, with the result that so far as expense was concerned there was a saving—at least on my side, for I had previously a very large appetite. (Laughter.) But with regard to our appetites, the

result was that mine came down, and my wife's, which had formerly been unduly small, went up, both becoming of a more normal character, so that while some saving was effected for the pocket, considerable benefit to health was realised at the same time.

Vegetarianism being taken up, studied, examined carefully, and put into practice judiciously, brought about those very desirable results. We have been going on with this trial for over twelve years. (Applause.) We did not at first entirely abandon the use of fish; probably using it some three or four times a year for a few years. I state this for the sake of correctness, not as recommending the procedure. But after the first few years that went the way of the flesh, and since then we have been *strict* Vegetarians. I lay accent on this word "strict" because it has been sometimes said, "You are not a strict Vegetarian, you take milk and eggs." Nevertheless, I call myself a *strict* Vegetarian. I had perhaps better say more fully what a Vegetarian is. A Vegetarian is one who, for any reason, abstains from the flesh of animals—fish, flesh, and fowl—and the products of such flesh. In these products are included gravy, dripping, lard, suet, animal and fish oils, &c., which are procured by the destruction of the animals. But such food products as are yielded without the loss or destruction of life, such as milk, eggs, and honey; the entire range of food products of the vegetable kingdom, and any food products found in the mineral kingdom, the Vegetarian may use at his or her discretion. That, I think, about as accurately describes a Vegetarian as can possibly be done in few words. So that if I take milk and eggs I am a strict Vegetarian, and those who follow that practice have every right to call themselves strict Vegetarians. (Hear, hear.) We have, as I have said, gone on for some years with this strict Vegetarian practice. It has not made Samsons of us; it has not entirely done away with every sort of ailment, but it has done a few things in that direction. Our average health—which was of an indifferent character—has been better. Of course the change did not take place at once, but our health has gradually and, I hope, permanently improved. Money has been saved, or, less having been expended on food, there has been more to expend in other ways. Joseph Brotherton's words, "My riches consist not in the extent of my possessions, but in the fewness of my wants," are worth remembering; and herein have been whatever riches my wife and myself have possessed. It is not that we have been rich, but our wants have been few. (Applause.) Though not "passing rich on forty pounds a year," we have been happy on a small income, and anyone may be rich who adopts the same practice and has but few wants.

When discussing the taking up of the Vegetarian practice there are many conditions to be considered under which it may be adopted, seeing it may be entered upon for various reasons, under the promptings of unselfish or of what may be called selfish motives. It is important, for instance, to consider whether it is quite safe to make the change. I have not the slightest doubt that it is so in almost all cases. Indeed, with very few exceptions, under a condition of fairly good health, the change would be, I believe, not only perfectly safe, but decidedly beneficial, provided it is carried out with due caution and with careful judgment. To the invalid a different dietary from that used by those in robust health will probably be useful. A man who has to work exceedingly hard in muscular employment can do with a far larger relative quantity of the pulse foods—containing, as they do, a large proportion of nitrogenous substance—than would be suitable for those who are engaged in sedentary occupations. A blacksmith or a puddler can eat, perhaps, two or three times more of the pulse foods with advantage than one who is confined to the desk all day. By those who have much hard mental work the pulse foods should only be taken, as a rule, sparingly. Those who have plenty of outdoor work may take more, but even by these too frequently the mistake is made of taking more than is necessary. When flesh food is abandoned mistakes are often made in two diverse directions—the first by those who, in commencing the Vegetarian practice, take a much larger quantity of other foods; and the second, by flesh food being given up with nothing whatever to take its place. Either of these practices will naturally produce evil results. The appetite is rather a peculiar thing to deal with, and should never be "coaxed" to go beyond that which it is possible for the digestive apparatus to use. The natural appetite is a very good guide, and when it manifests a dislike for food it is generally an indication that something is amiss with the body, and that the nervous force is required to perform other work than the digestion of food. Those who have abnormally large appetites will need sometimes to exercise their will-power in order to guard against over-eating. (Hear, hear.) If more food is taken than can be digested, the system will be severely taxed, and ill results are likely to follow. For health the diet should not consist of rich and complicated dishes, and too great a variety at a single meal should also be avoided. The meals can be varied from day to day and one may obtain numberless combinations, but the combinations should not be too numerous or complex, especially for the delicate and for invalids. In providing for such persons, for breakfast, a little wheatmeal porridge would generally be found more attractive and far more useful than the

usual plate of oatmeal porridge—a large plate of oatmeal porridge might act in a somewhat repellant manner. The wheatmeal porridge nicely and daintfly served, will frequently act as the best aid to the appetite. In such cases wheatmeal will be found altogether better than oatmeal, which has some properties that are less suitable for the weakly. With the porridge add a little brown bread. Here, in speaking of porridges I may say that it is advisable that they should always be taken with something of a hard nature to bite. Porridges are apt to slip through the mouth without any mastication and without being mixed with the saliva, and when this is the case with starchy foods their value is very largely lost. In addition to the loss of their food value, they prove a tax upon the powers of the digestive apparatus. All food needs to be thoroughly masticated if we are to get the full nourishment out of it, and it should be our aim to get the best value we can out of everything we eat. In addition to a little wheatmeal porridge and brown bread, a little stewed fruit might be taken. If the will is sufficiently strong one may do without tea or coffee, and so much the better for the body. I said a little while ago that in our own practice we abandoned the use of tea and coffee. Since that time we have tried many kinds of experiments. We once lived for a good period on two meals a day; we have tried doing without various things, and have made sundry experiments in taking tea and coffee, as well as doing without. When I spoke of having abandoned the use of tea and coffee, I meant for a time, and not as a permanent step. Coming to dinner, it must be remembered that for the invalid the food should be small in quantity, and as daintily served as possible. For dinner we need not depend too much upon soups, but rather try such foods as will give the teeth something to do. All the pulse foods can be cooked in various ways, and when nicely cooked are excellent. After stewing they may be baked sufficiently firm to cut, and will form useful portable dishes. For travellers, picnic parties, or those who have to work away from home and who carry their dinners with them, such dishes as these will be found of great service. Macaroni cheese can be prepared in the same way, and is far better and less costly than beef or mutton. Such dinners as these, simply prepared, and alternated with various other Vegetarian preparations, act beneficially upon a small appetite, care being taken that quantity and frequency of the pulse foods are not too great. Varied by farinaceous puddings, and with a little stewed fruit or raw ripe fruit, excellent dinners may be had. Then for tea or supper a little brown bread and fruit, or a simple pudding, will probably be the best that can be had. I would particularly recommend that the number of meals be confined

to three in the day, and that no meal be taken within three hours of retiring. The digestive organs will then have time to rest. Although these suggestions are in the main applicable to those who are not in the enjoyment of robust health, an extension in respect to quantity and greater freedom as regards variety will make them of service to the healthiest and strongest. In the case of children the more simple the dietary the better for them. I need hardly say that milk is a most valuable food for children. For the weakly a glass of warm milk or warm milk and water will often be found the most useful substitute for tea or coffee. There are many ways of preparing food which will commend themselves to the thoughtful housewife, and many other things call for consideration, in regard to Vegetarian practice. Besides this there are, outside of Vegetarianism, many things to be considered if health is to be maintained. It will not do to imagine if we abandon flesh that this one action of our lives is going to counteract the injurious results of our habits of life. It will do its share, but no more. If we persist in breathing bad air we must suffer the consequences of that persistence; if we continue drinking impure water—whether in the shape of alcoholic liquors or in any other form—we must of course suffer the natural consequences of those habits; still, if we take up the Vegetarian practice and will carry it out wisely and judiciously, we shall reap very great benefit from it, especially if at the same time we pay attention to the other conditions of health. The moral aspects of the Vegetarian practice I need hardly touch upon. They are of very great importance, and probably one of the most important is its influence upon the use of alcoholic drinks. The abandonment of animal flesh, the substitution of fresh, ripe, juicy fruits, will do much, I believe, to prevent and cure the drink crave. (Hear, hear.) If we can induce those who are the victims of the drink traffic to take up the Vegetarian practice, and carry it out wisely, then we may help them very effectively towards breaking for themselves the fetters with which they are bound. (Hear, hear.) If we want to do this, we shall be greatly helped by getting some practical experience, that we may know how to help our brothers and sisters who are needing such aid. I do want all our temperance friends to consider this question, believing, as I do, that the practice of Vegetarianism is one of the greatest aids to the progress of temperance reform. (Applause.)

After a few remarks from the CHAIRMAN and Mr. AXEL GUSTAFSON, a vote of thanks was cordially carried to the lecturer and chairman for their services.

In replying, Mr. KNIGHT referred to what he considered the main foundation of a Vegetarian dietary. The best foundation is genuine

wheatmeal bread. He continued:—What I consider one of the cheering features of the present age is the growth of the bread reform movement. In my opinion the best kind of bread is not that which is made by any process of fermentation, or with any chemical action, but bread made simply from wheatmeal and water, and entirely unleavened. Some native races in India thrive and grow strong on such bread, and I believe others also use it with advantage. By the aid of "gem pans," which the Americans have invented and sent over to us, we can make very nice unleavened bread, retaining all its sweetness and all its nutrition. The Vegetarian system affords such articles as will give all requisite nourishment, and in a far better way and more appropriate to the human system than can possibly be obtained from any kind of animal food. Beef tea has been greatly lauded. There are substitutes for this, such as mushroom tea, and the liquor procured by gently stewing the pulse foods and allowing them to settle, especially whole lentils. In this we avoid the risk of disease, and get a larger proportion of nutriment, with an absence of the stimulating properties—giving fictitious strength—for which beef tea is so often administered. The lecturer concluded by recommending this question to medical men as a system which would be of great value in cases of sickness.

No. 14.

FRUITS USED BY MAN AS FOODS.

By Mr. Leo H. Grindon.

Mr. Leo H. Grindon delivered the last of this series of lectures on Tuesday evening, May 8, at the Brotherton Hall, Fountain Street, Manchester; Mr. Edwin Collier, Treasurer of the Vegetarian Society, in the chair. There was a good attendance.

Mr. Grindon said: There are not more than about fifty kinds of fruits that are ordinarily used by man as food in this country. Fruits must have been the food first used by man, for man could not grind corn and make it into bread until he had learnt the art of tilling the soil, and cultivating corn. When we talk about the primitive food of mankind, we are thrown back upon guessing as to what fruits they are likely to have eaten. It is said the banana was one of the fruits the use of which was earliest known to man. In hot countries it fills the place occupied by our most substantial garden vegetables. The produce per acre of bananas is greater than that of potatoes. Unfortunately, we cannot grow it in this country, except in the hothouse, since we lack the tropical heat which is necessary for the production of the fruit.

Another fruit that probably supplied our earliest ancestors with food was the date. At this moment there are tens of thousands of our fellow-creatures who subsist upon the date. The date palm is to the natives o Africa just what the wheat field is to ourselves. But for the date trees many regions of Africa would be uninhabitable. The date, like the fig, is a most substantial food.

One of the most curious of known foods is the well-known ivory nut. This nut, in its soft state, is eaten by the natives in some parts of South America, but eventually it becomes so hard as to be serviceable as a substitute for ivory. The cocoanut is also a very valuable food, and one that might with advantage be more widely used than at present. The value of nuts depends very much upon the combination of the albuminoids and the oil. Both these ingredients are abundant in the cocoanut, which thus possesses plenty of solid nutriment. Scarcely less valuable are the Brazil nuts, and many others less commonly seen in our markets. The

common Spanish chestnut affords a staple food in some of the continental countries. This nut is more farinaceous in its nature than any other nut.

With regard to fruits, all the well-known types are valuable for their medicinal and refreshing qualities. Children should have as much fruit as they can eat. The delicate acids that fruits contain are as healthy as they are pleasant. If people want to keep in sound health, they cannot do better than give the fruits an important place in their daily dietary.

Mr. Grindon's remarks were interspersed with histories of various fruits in common use.

After a few remarks from the Rev. J. Clark, on the motion of the Rev. G. Grundy, seconded by Mr. J. J. Greenhalgh, a hearty vote of thanks was accorded to Mr. Grindon for his lecture. A similar compliment to the Chairman brought the proceedings to a close.

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